LIBRARY REFERENCE USPS-LR-J-127
DATA, PROGRAMS, AND RESULTS
FOR WITNESS THRESS'S ECONOMETRIC WORK

Category Two Library Reference
(Thress, USPS-T-8)

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LIBRARY REFERENCE USPS-LR-J-127: DATA, PROGRAMS, AND RESULTS FOR WITNESS THRESS'S ECONOMETRIC WORK

I. Introduction

This category 2 library reference presents the data used in my econometric analyses, the econometric results presented in my testimony, as well as the SORITEC programs used to generate these results.

The data used in my econometric analyses are presented in section II below. Adjustments to the data prior to their use in my econometric analyses are described as necessary. The data in the form in which they were used for my econometric analyses are provided in a SORITEC database as part of this Library Reference.

In section III below, the econometric results used in my testimony are presented. These results are also filed electronically as part of this Library Reference.

In section IV below, the econometric share equations presented in section IV of my testimony are presented. These results are also filed electronically as part of this Library Reference.

In section V below, the programs used to generate my econometric results are presented. These programs are also filed as part of this Library Reference

II. Data used in Econometric Analyses

Tables 127-1 through 127-19 below present all of the data used in my econometric analyses. A glossary of the variable names is presented at the conclusion of this section.

A. Data used in Share Equations

The data in Tables 127-1 and 127-8 are used to develop econometric share equations. The volume data (Tables 127-1 through 127-4) come from Christensen

Associates prior to 1997. Since 1997, these data come from Postal Service RPW reports. The worksharing discounts (Tables 127-5 through 127-8) are derived from the Postal Service's rate history. In the case of workshared First-Class letters, the discounts used in the econometric share equations are equal to the discounts shown here minus the presort nonautomation discount (D1_3NA). For all of the econometric share equations, the discounts are deflated by the personal consumption deflator (PC in Table 127-14 below) prior to their use in modeling the econometric share equations.

B. Data used in Demand Equations

1. Volume Data

The data in Tables 127-9 and 127-10 are volumes of mail at the level of detail at which demand equations are estimated. This data comes from Postal Service RPW reports, except for the data from 1993 through 1996, which, as noted above, came from Christensen Associates. This data is divided by adult population (variable N22_PLUS in Table 127-14 below) and the number of business days (variable BDAYS in Table 127-16 below). The natural logarithm of these volumes per adult per business day are then used as the dependent variables in the demand equations discussed in my testimony and reported in section III of this workpaper below.

2. Prices

Tables 127-11 through 127-13 present fixed-weight price indices. The derivation of these variables is described in Library Reference USPS-LR-J-122.

These price indices are deflated by the personal consumption deflator (variable PC in Table 127-14). The natural logarithm of these deflated prices are then used in the demand equations as described in my testimony.

3. Economic Data Obtained from DRI/WEFA

The data in Table 127-14 is obtained from DRI/WEFA (DRI), with the exception of I_ADV (Internet advertising expenditures), which are from the Internet Advertising Bureau, as compiled by PriceWaterhouseCoopers. For all of the other variables, except for YD96PERM, monthly data is downloaded from DRI. This data is then converted into Postal quarters using a spreadsheet, MO2QTR, which is included as part of this Library Reference.

The variables YD96C and C96C are divided by adult population (N22_PLUS) after coming from DRI. The variables WPIP, WP_NWS, and WP_ADVPR are deflated by dividing by PC. The variable STR96C, CS96C_INT, and I_ADV is deflated by both N22_PLUS and PC after downloading it from DRI. The data in Tables 127-14 have been adjusted in this way.

The variable YD96PERM (long-run income) is constructed from real personal disposable income per adult (YD96C divided by N22_PLUS) using equation (III.6) in my testimony, which is repeated below for convenience.

$$Y^p_t = 0.905 \bullet (1.00381 \bullet Y^p_{t-1}) + 0.095 \bullet Y_t \qquad \text{(III.6)}$$

All of this data, except for CS96C_INT and I_ADV, enter the demand equations logged. CS96C_INT and I_ADV are raised to a power, λ, before entering the regressions. The value of λ is equal to 0.560145 for CS96C_INT (Consumption Expenditures on Internet Service Providers) and 0.892915 for I_ADV.

5. Additional Data used in Demand Equations

Tables 127-15 through 127-19 present additional data which is used in certain demand equations. Tables 127-15 and 127-16 present seasonal variables. The calculation of these variables was discussed in section III.A.3. of my testimony. The

variable BDAYS in Table 127-16 is the number of business days within the Postal quarter and is used in the construction of the seasonal variables as well as to deflate the volumes which are used as dependent variables in my demand equations.

The variables in Tables 127-17 through 127-19 are described as warranted in section II of my testimony. All of the variables in Tables 127-15 through 127-19 enter the demand equations in exactly the form that they appear in these tables.

Table 127-1
Volumes of Workshared Categories of First-Class Letters, Flats, and IPPs, 1993Q1 - 2001Q3
(millions of pieces)

TIME	VOL1_3WS	VOL1_3Z1	VOL1_3Z3	VOL1_3B1	VOL1_3B3	VOL1_3B5	VOL1_3F1	VOL1_3F3	VOL1_3C
1993Q1	7,136.106	72.355	608.179	0.000	1,824.160	1,146.948	2.451	5.039	554.347
1993Q2	7,590.415	75.734	597.034	0.000	2,073.754	1,261.518	3.743	4.197	553.921
1993Q3	7,386.670	81.702	625.778	0.000	2,005.461	1,159.011	9.263	2.991	569.936
1993Q4	9,727.374	117.417	688.558	0.000	2,734.768	1,699.598	6.327	5.428	702.754
1994Q1	7,644.928	109.372	426.284	0.000	2,260.330	1,415.111	5.895	6.308	601.926
1994Q2	8,033.758	97.778	383.832	0.000	2,424.629	1,552.047	6.287	15.584	723.636
1994Q3	8,141.957	99.692	390.281	0.000	2,536.416	1,613.626	7.556	6.891	723.466
1994Q4	10,222.389	122.041	371.748	0.000	3,202.347	2,224.129	5.641	9.412	883.218
1995Q1	8,500.114	96.430	319.023	0.000	2,694.961	1,805.048	4.553	9.111	725.989
1995Q2	8,892.435	91.283	274.021	0.000	2,854.762	2,046.037	5.744	22.049	748.583
1995Q3	8,820.866	94.361	267.744	0.000	2,937.546	2,071.012	5.651	13.534	693.325
1995Q4	11,174.269	147.792	322.074	0.000	3,803.501	2,649.417	5.689	16.989	842.165
1996Q1	8,856.517	113.339	196.197	0.000	3,066.437	2,218.690	7.461	20.924	740.834
1996Q2	9,141.381	109.593	194.476	0.000	3,292.139	2,232.216	7.942	20.580	788.695
1996Q3	9,080.145	111.342	182.287	0.000	3,314.066	2,262.997	11.578	20.245	748.870
1996Q4	10,920.238	50.666	77.557	716.935	4,815.622	2,348.130	21.240	42.634	506.620
1997Q1	8,712.274	0.000	0.000	868.881	4,186.364	1,882.705	9.409	54.222	294.365
1997Q2	9,231.817	0.000	0.000	916.107	4,454.871	2,086.244	11.530	46.399	336.444
1997Q3	9,173.242	0.000	0.000	994.081	4,433.866	2,093.076	14.362	44.552	304.906
1997Q4	11,530.942	0.000	0.000	1,282.786	5,645.509	2,697.238	10.067	60.930	377.606
1998Q1	9,181.462	0.000	0.000	1,035.914	4,437.521	2,240.997	7.697	49.811	310.052
1998Q2	9,599.298	0.000	0.000	1,039.070	4,628.302	2,412.985	7.920	50.997	312.514
1998Q3	9,489.607	0.000	0.000	1,083.512	4,558.456	2,400.648	12.482	63.442	287.484
1998Q4	12,150.768	0.000	0.000	1,404.947	5,905.735	3,073.165	15.230	58.842	366.207
1999Q1	9,805.607	0.000	0.000	1,126.711	4,748.589	2,499.639	9.563	54.264	306.645
1999Q2	10,234.309	0.000	0.000	1,166.728	4,922.524	2,652.548	9.139	63.043	316.636
1999Q3	10,000.608	0.000	0.000	1,177.168	4,830.436	2,710.543	13.129	65.417	303.966
1999Q4	12,644.316	0.000	0.000	1,518.627	6,139.904	3,420.476	12.974	79.092	331.987
2000Q1	10,361.536	0.000	0.000	1,174.298	4,969.992	2,873.713	12.197	74.317	276.900
2000Q2	10,748.866	0.000	0.000	1,176.999	5,151.722	2,932.783	11.222	76.727	276.216
2000Q3	10,665.756	0.000	0.000	1,215.667	5,043.634	2,945.420	18.426	96.052	231.478
2000Q4	13,501.302	0.000	0.000	1,563.912	6,495.840	3,841.418	25.593	111.802	288.869
2001Q1	10,733.473	0.000	0.000	1,259.598	5,179.247	3,061.371	14.730	103.040	228.603
2001Q2	11,238.869	0.000	0.000	1,252.325	5,381.567	3,269.935	22.759	105.260	251.668
2001Q3	10,870.432	0.000	0.000	1,279.358	5,130.039	3,209.231	22.279	144.473	227.422

Table 127-2
Volumes of Workshared Categories of First-Class Cards, 1993Q1 - 2001Q3
(millions of pieces)

TIME	VOL05SP	VOL5_7NA	VOL5_7R	VOL5_7Z1	VOL5_7Z3	VOL5_7B1	VOL5_7B3	VOL5_7B5	VOL5_7C
1993Q1	585.495	139.244	32.589	4.410	29.633	12.451	19.317	44.377	64.343
1993Q2	577.725	130.530	33.340	3.097	37.788	7.887	21.015	52.677	87.896
1993Q3	546.463	133.821	32.082	4.029	20.530	7.280	26.676	57.539	72.755
1993Q4	676.540	176.390	46.403	4.099	21.151	13.584	53.182	105.844	99.787
1994Q1	611.755	141.283	34.140	4.151	12.848	13.197	38.611	68.436	74.084
1994Q2	559.991	145.389	37.810	4.258	12.290	11.697	44.968	88.424	92.050
1994Q3	561.947	134.535	37.150	4.373	9.868	14.713	43.351	79.298	73.530
1994Q4	692.270	181.095	54.481	4.077	12.064	18.727	56.718	130.380	92.977
1995Q1	599.984	130.681	36.640	2.993	10.247	16.749	35.641	103.362	81.550
1995Q2	542.168	134.720	45.072	4.029	5.912	14.710	53.314	122.823	147.052
1995Q3	548.255	126.937	47.812	3.538	8.537	17.173	51.806	114.098	66.421
1995Q4	711.293	162.250	71.390	4.505	11.147	20.745	74.413	158.945	96.406
1996Q1	598.707	125.762	48.619	4.283	9.544	17.564	52.651	110.968	84.450
1996Q2	517.094	124.156	54.406	3.741	10.879	16.925	64.851	140.805	115.852
1996Q3	549.295	120.730	51.160	3.040	9.244	16.791	57.707	117.857	65.234
1996Q4	747.701	181.965	27.056	1.110	4.119	73.438	148.405	138.880	55.139
1997Q1	646.046	158.076	0.000	0.000	0.000	71.485	168.510	124.168	29.004
1997Q2	508.858	157.211	0.000	0.000	0.000	74.700	164.992	126.795	43.845
1997Q3	565.482	135.964	0.000	0.000	0.000	76.373	148.829	100.521	27.077
1997Q4	704.447	180.422	0.000	0.000	0.000	104.483	203.146	140.356	37.863
1998Q1	658.515	136.387	0.000	0.000	0.000	86.722	167.114	127.713	27.181
1998Q2	544.875	129.580	0.000	0.000	0.000	102.952	205.952	161.009	47.227
1998Q3	585.841	130.739	0.000	0.000	0.000	96.512	175.174	137.357	29.079
1998Q4	767.815	155.369	0.000	0.000	0.000	119.487	241.816	202.778	43.113
1999Q1	606.985	143.414	0.000	0.000	0.000	95.875	187.769	146.470	25.315
1999Q2	506.004	139.551	0.000	0.000	0.000	93.412	197.376	154.711	34.703
1999Q3	569.234	102.111	0.000	0.000	0.000	99.211	183.599	111.778	17.498
1999Q4	731.791	130.343	0.000	0.000	0.000	129.516	243.115	166.928	30.828
2000Q1	631.043	132.011	0.000	0.000	0.000	100.210	199.803	153.402	26.399
2000Q2	527.910	142.707	0.000	0.000	0.000	103.612	201.216	147.315	24.538
2000Q3	602.119	239.733	0.000	0.000	0.000	109.028	203.280	123.475	15.158
2000Q4	755.737	164.244	0.000	0.000	0.000	138.552	284.684	175.504	22.872
2001Q1	646.899	131.542	0.000	0.000	0.000	108.902	242.025	169.436	16.646
2001Q2	522.777	111.560	0.000	0.000	0.000	106.036	233.172	181.795	22.466
2001Q3	568.357	108.857	0.000	0.000	0.000	110.677	229.168	168.397	17.192

Table 127-3
Volumes of Workshared Categories of Standard Regular Mail, 1993Q1 - 2001Q3
(millions of pieces)

TIME	VOL19N_L	VOL19N_NL	VOL19Z	VOL19B	VOL19F	VOL21N_L	VOL21N_NL	VOL21Z	VOL21B3	VOL21B5	VOL21F
1993Q1	645.688	417.111	36.635	254.432	13.517	1,585.178	914.642	90.042	430.498	1,289.083	399.110
1993Q2	554.769	350.110	36.069	281.349	15.406	1,414.600	807.732	76.562	410.213	1,229.699	616.459
1993Q3	583.122	371.988	30.964	188.535	14.972	1,489.374	744.298	90.936	436.173	1,418.669	713.514
1993Q4	699.421	429.541	28.504	266.001	18.705	1,777.263	849.435	96.941	668.820	1,902.809	1,229.523
1994Q1	611.653	410.534	19.920	177.171	20.102	1,711.590	786.663	75.539	453.097	1,089.592	1,126.851
1994Q2	562.353	393.080	15.146	187.737	26.405	1,397.164	731.604	64.588	490.389	1,278.143	1,066.375
1994Q3	604.752	418.072	16.547	191.853	26.529	1,489.938	733.114	84.210	499.768	1,158.394	1,126.436
1994Q4	757.935	474.446	22.900	261.242	28.173	1,966.774	988.242	80.491	664.460	1,696.458	1,534.528
1995Q1	602.729	386.014	16.874	208.105	31.736	1,725.065	859.736	96.204	541.080	1,316.466	1,462.417
1995Q2	526.867	366.758	12.294	212.262	33.661	1,423.751	744.966	50.651	573.242	1,389.067	1,387.689
1995Q3	570.192	403.810	12.745	216.257	37.176	1,444.727	773.123	50.904	573.952	1,364.447	1,352.345
1995Q4	666.324	477.886	13.330	290.959	35.950	1,833.615	919.454	58.785	746.702	1,816.690	1,633.218
1996Q1	535.472	364.450	10.414	265.928	27.849	1,554.919	808.611	47.111	633.060	1,511.838	1,654.805
1996Q2	447.874	338.416	6.960	248.576	28.760	1,281.051	726.411	29.418	623.164	1,556.529	1,488.546
1996Q3	508.902	348.888	8.458	276.128	32.538	1,491.644	722.290	36.197	638.066	1,518.205	1,483.292
1996Q4	569.125	391.831	3.665	659.028	65.899	1,204.867	754.366	13.406	1,615.164	1,612.671	2,142.925
1997Q1	435.925	323.407	0.000	645.099	56.000	760.401	677.617	0.000	2,050.306	630.472	2,275.259
1997Q2	368.048	278.681	0.000	655.668	56.188	580.141	580.168	0.000	2,001.583	601.338	2,043.732
1997Q3	385.414	304.861	0.000	699.124	62.432	617.793	535.015	0.000	2,092.780	717.592	2,103.196
1997Q4	429.659	330.515	0.000	929.872	75.025	710.163	654.876	0.000	2,806.433	959.122	2,745.291
1998Q1	340.966	281.119	0.000	780.810	66.251	602.546	590.562	0.000	2,370.569	853.195	2,577.564
1998Q2	301.590	253.906	0.000	724.171	61.537	477.993	496.505	0.000	2,189.735	779.207	2,277.035
1998Q3	338.691	271.698	0.000	820.014	77.684	541.693	518.107	0.000	2,378.491	931.314	2,343.418
1998Q4	382.905	300.967	0.000	1,029.566	84.199	642.233	601.895	0.000	3,137.592	1,306.953	3,044.453
1999Q1	303.805	257.382	0.000	856.721	76.090	557.224	560.372	0.000	2,537.137	1,080.800	2,857.234
1999Q2	272.940	221.153	0.000	774.698	70.539	459.627	448.303	0.000	2,372.323	1,217.824	2,421.233
1999Q3	293.495	256.033	0.000	872.514	77.456	525.209	432.123	0.000	2,610.997	1,705.514	2,552.582
1999Q4	367.259	269.364	0.000	1,086.576	87.370	624.646	474.589	0.000	3,361.784	2,308.228	3,239.665
2000Q1	330.158	215.901	0.000	879.140	78.244	545.320	424.972	0.000	2,745.860	2,061.646	3,068.040
2000Q2	293.739	193.432	0.000	793.071	69.230	475.087	373.675	0.000	2,571.991	1,960.862	2,507.846
2000Q3	311.415	216.875	0.000	890.777	97.535	521.059	360.057	0.000	2,850.623	2,253.389	2,766.244
2000Q4	367.959	235.910	0.000	1,126.646	96.288	535.507	431.220	0.000	3,680.142	2,824.847	3,318.221
2001Q1	302.718	198.347	0.000	919.170	81.192	484.154	382.427	0.000	3,051.546	2,699.808	3,189.522
2001Q2	247.571	164.182	0.000	846.043	74.521	358.426	314.322	0.000	2,758.031	2,372.291	2,495.635
2001Q3	253.874	171.329	0.000	944.023	109.731	412.171	417.007	0.000	3,153.783	2,792.998	2,573.141

Table 127-4
Volumes of Workshared Categories of Standard Nonprofit Mail, 1994Q1 - 2001Q3
(millions of pieces)

TIME	VOL22N_L	VOL22N_NL	VOL22Z	VOL22B	VOL22F	VOL24N_L	VOL24N_NL	VOL24Z	VOL24B3	VOL24B5	VOL24F
1994Q1	445.711	156.451	14.616	94.060	4.112	811.739	204.435	46.132	172.425	318.532	90.707
1994Q2	383.820	123.368	12.149	78.918	3.714	698.076	192.610	39.757	144.031	281.056	90.314
1994Q3	337.173	106.900	12.875	90.261	3.257	642.305	140.134	40.987	168.904	439.121	85.242
1994Q4	465.805	149.209	13.806	98.843	4.783	791.523	212.978	42.414	175.628	351.764	123.324
1995Q1	450.371	125.542	13.846	93.036	4.079	862.732	172.716	46.024	178.446	416.810	114.903
1995Q2	391.123	111.412	11.427	81.916	3.952	732.673	172.070	40.333	159.210	375.055	110.959
1995Q3	375.389	109.126	12.180	93.124	3.736	712.192	162.477	33.677	163.814	333.870	102.067
1995Q4	477.427	130.892	14.137	114.058	5.598	788.682	192.464	40.617	209.614	440.562	155.711
1996Q1	407.001	119.855	11.483	111.253	4.968	718.249	178.169	39.334	219.502	480.713	124.105
1996Q2	345.316	94.192	9.442	99.463	5.599	637.612	153.831	30.325	184.701	426.571	117.761
1996Q3	413.145	91.266	10.733	117.086	5.354	647.820	143.845	32.465	222.379	427.320	127.921
1996Q4	375.576	101.520	11.581	183.003	12.968	726.435	166.371	46.835	345.419	477.538	192.171
1997Q1	338.742	92.044	1.996	231.081	11.614	627.001	137.126	4.912	615.937	372.976	185.433
1997Q2	291.093	82.511	0.000	231.395	10.225	502.535	110.618	0.000	593.185	257.300	167.312
1997Q3	284.996	77.191	0.000	258.759	11.379	535.433	100.887	0.000	619.531	255.511	179.956
1997Q4	322.440	89.667	0.000	317.486	15.173	552.395	134.015	0.000	785.133	329.654	266.211
1998Q1	280.324	72.756	0.000	327.236	12.857	497.050	105.495	0.000	794.912	423.412	228.656
1998Q2	251.651	68.532	0.000	288.590	12.197	433.700	96.304	0.000	699.593	340.385	192.628
1998Q3	255.281	64.704	0.000	305.105	16.289	466.022	93.130	0.000	718.836	343.011	202.179
1998Q4	287.207	77.588	0.000	362.303	17.502	528.133	134.052	0.000	847.802	398.728	307.106
1999Q1	259.588	67.048	0.000	342.592	16.234	500.498	114.325	0.000	880.008	532.474	268.840
1999Q2	225.449	58.825	0.000	308.122	15.426	396.158	100.837	0.000	731.519	385.705	227.908
1999Q3	233.693	51.597	0.000	324.893	14.369	459.764	80.413	0.000	749.804	361.282	238.309
1999Q4	264.601	59.431	0.000	380.977	18.933	510.692	103.407	0.000	874.404	414.116	361.711
2000Q1	218.472	51.730	0.000	386.324	20.296	422.791	79.940	0.000	927.982	602.385	330.193
2000Q2	189.656	48.131	0.000	324.625	16.641	344.604	78.352	0.000	772.499	411.962	285.126
2000Q3	196.763	47.065	0.000	359.008	19.156	396.207	74.167	0.000	837.630	436.434	273.949
2000Q4	218.845	55.199	0.000	411.352	21.904	416.481	86.224	0.000	985.901	518.746	421.440
2001Q1	191.240	46.709	0.000	395.916	23.040	408.025	88.062	0.000	971.255	757.207	371.343
2001Q2	168.168	43.972	0.000	320.207	17.771	346.984	66.310	0.000	786.411	455.915	295.410
2001Q3	171.710	37.159	0.000	334.236	21.111	355.240	63.837	0.000	789.587	470.949	294.916

Table 127-5
Worksharing Discounts for First-Class Letters, Flats, IPPs, 1993Q1 - 2001Q3
(dollars)

TIME	D1_3NA	D1_3Z1	D1_3Z3	D1_3B1	D1_3B3	D1_3B5	D1_3F1	D1_3F3	D1_3C
1993Q1	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1993Q2	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1993Q3	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1993Q4	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1994Q1	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1994Q2	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1994Q3	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1994Q4	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1995Q1	$0.042	$0.014	$0.048	$0.014	$0.051	$0.057	$0.023	$0.057	$0.060
1995Q2	$0.045	$0.015	$0.052	$0.015	$0.055	$0.061	$0.024	$0.061	$0.064
1995Q3	$0.046	$0.015	$0.053	$0.015	$0.056	$0.062	$0.025	$0.062	$0.066
1995Q4	$0.046	$0.015	$0.053	$0.015	$0.056	$0.062	$0.025	$0.062	$0.066
1996Q1	$0.046	$0.015	$0.053	$0.015	$0.056	$0.062	$0.025	$0.062	$0.066
1996Q2	$0.046	$0.015	$0.053	$0.015	$0.056	$0.062	$0.025	$0.062	$0.066
1996Q3	$0.046	$0.015	$0.053	$0.015	$0.056	$0.062	$0.025	$0.062	$0.066
1996Q4	$0.039	$0.010	$0.044	$0.029	$0.059	$0.068	$0.027	$0.058	$0.074
1997Q1	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1997Q2	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1997Q3	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1997Q4	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1998Q1	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1998Q2	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1998Q3	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1998Q4	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1999Q1	$0.025	$0.000	$0.025	$0.059	$0.066	$0.082	$0.030	$0.050	$0.090
1999Q2	$0.025	$0.000	$0.025	$0.060	$0.068	$0.085	$0.030	$0.056	$0.091
1999Q3	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
1999Q4	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2000Q1	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2000Q2	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2000Q3	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2000Q4	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2001Q1	$0.025	$0.000	$0.025	$0.060	$0.069	$0.087	$0.030	$0.060	$0.092
2001Q2	$0.022	$0.000	$0.022	$0.061	$0.071	$0.087	$0.030	$0.062	$0.095
2001Q3	$0.020	$0.000	$0.020	$0.062	$0.073	$0.087	$0.030	$0.063	$0.097

Table 127-6
Worksharing Discounts for First-Class Cards, 1993Q1 - 1999Q4
(dollars)

TIME	D5_7NA	D5_7Z1	D5_7Z3	D5_7B1	D5_7B3	D5_7B5	D5_7C
1993Q1	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1993Q2	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1993Q3	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1993Q4	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1994Q1	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1994Q2	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1994Q3	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1994Q4	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1995Q1	$0.020	$0.010	$0.026	$0.023	$0.035	$0.041	$0.038
1995Q2	$0.021	$0.011	$0.027	$0.024	$0.036	$0.042	$0.039
1995Q3	$0.021	$0.011	$0.027	$0.025	$0.036	$0.043	$0.040
1995Q4	$0.021	$0.011	$0.027	$0.025	$0.036	$0.043	$0.040
1996Q1	$0.021	$0.011	$0.027	$0.025	$0.036	$0.043	$0.040
1996Q2	$0.021	$0.011	$0.027	$0.025	$0.036	$0.043	$0.040
1996Q3	$0.021	$0.011	$0.027	$0.025	$0.036	$0.043	$0.040
1996Q4	$0.021	$0.008	$0.025	$0.028	$0.038	$0.047	$0.046
1997Q1	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1997Q2	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1997Q3	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1997Q4	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1998Q1	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1998Q2	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1998Q3	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1998Q4	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1999Q1	$0.020	$0.000	$0.020	$0.034	$0.041	$0.057	$0.060
1999Q2	$0.020	$0.000	$0.020	$0.034	$0.041	$0.055	$0.059
1999Q3	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
1999Q4	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2000Q1	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2000Q2	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2000Q3	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2000Q4	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2001Q1	$0.020	$0.000	$0.020	$0.034	$0.041	$0.054	$0.059
2001Q2	$0.020	$0.000	$0.020	$0.035	$0.042	$0.051	$0.060
2001Q3	$0.020	$0.000	$0.020	$0.036	$0.042	$0.049	$0.060

Table 127-7
Worksharing Discounts for Standard Regular Mail, 1993Q1 - 2001Q3
(dollars)

TIME	D19Z	D19B	D19F	D21Z	D21B3	D21B5	D21F
1993Q1	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1993Q2	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1993Q3	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1993Q4	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1994Q1	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1994Q2	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1994Q3	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1994Q4	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1995Q1	$0.009	$0.019	$0.025	$0.004	$0.011	$0.019	$0.017
1995Q2	$0.010	$0.021	$0.028	$0.005	$0.012	$0.021	$0.018
1995Q3	$0.010	$0.022	$0.029	$0.005	$0.013	$0.022	$0.019
1995Q4	$0.010	$0.022	$0.029	$0.005	$0.013	$0.022	$0.019
1996Q1	$0.010	$0.022	$0 029	$0.005	$0.013	$0.022	$0.019
1996Q2	$0.010	$0.022	$0.029	$0.005	$0.013	$0.022	$0.019
1996Q3	$0.010	$0.022	$0.029	$0.005	$0.013	$0.022	$0.019
1996Q4	$0.007	$0.038	$0.029	$0.003	$0.020	$0.032	$0.024
1997Q1	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1997Q2	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1997Q3	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1997Q4	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1998Q1	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1998Q2	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1998Q3	$0 000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1998Q4	$0.000	$0.073	$0.029	$0.000	$0.034	$0.054	$0.036
1999Q1	$0.000	$0.073	$0.029	$0 000	$0.034	$0.054	$0.036
1999Q2	$0.000	$0.061	$0.046	$0.000	$0.032	$0.050	$0.037
1999Q3	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
1999Q4	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2000Q1	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2000Q2	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2000Q3	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2000Q4	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2001Q1	$0.000	$0.052	$0.059	$0.000	$0.031	$0.047	$0.037
2001Q2	$0.000	$0.053	$0.050	$0.000	$0.038	$0.052	$0.031
2001Q3	$0.000	$0.053	$0.044	$0.000	$0.043	$0.056	$0.027

Table 127-8
Worksharing Discounts for Standard Nonprofit Mail, 1994Q1 - 2001Q3
(dollars)

TIME	D22Z	D22B	D22F	D24Z	D24B3	D24B5	D24F
1994Q1	$0.007	$0.017	$0.025	$0.004	$0.010	$0.017	$0.017
1994Q2	$0.007	$0.017	$0.025	$0.004	$0.010	$0.017	$0.017
1994Q3	$0.007	$0.017	$0.025	$0.004	$0.010	$0.017	$0.017
1994Q4	$0.007	$0.017	$0.025	$0.004	$0.010	$0.017	$0.017
1995Q1	$0.007	$0.017	$0.025	$0.004	$0.010	$0.017	$0.017
1995Q2	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1995Q3	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1995Q4	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1996Q1	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1996Q2	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1996Q3	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1996Q4	$0.007	$0.018	$0.026	$0.004	$0.010	$0.018	$0.018
1997Q1	$0.002	$0.029	$0.025	$0.001	$0.017	$0.028	$0.022
1997Q2	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1997Q3	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1997Q4	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1998Q1	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1998Q2	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1998Q3	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1998Q4	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1999Q1	$0.000	$0.033	$0.024	$0.000	$0.019	$0.032	$0.024
1999Q2	$0.000	$0.043	$0.040	$0.000	$0.024	$0.042	$0.022
1999Q3	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
1999Q4	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2000Q1	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2000Q2	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2000Q3	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2000Q4	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2001Q1	$0.000	$0.050	$0.051	$0.000	$0.028	$0.049	$0.021
2001Q2	$0.000	$0.036	$0.045	$0.000	$0.025	$0.043	$0.019
2001Q3	$0.000	$0.025	$0.041	$0.000	$0.023	$0.038	$0.017

Table 127-9
Volumes of First-Class, Periodical, and Standard Mail, 1971Q1 - 1980Q4
(millions of pieces)

TIME	VOL01SP	VOL1_3WS	VOL4	VOL5_7	VOL2R	VOL11	VOL12_13	VOL3R_NCR	VOL3R_CR	VOL3N
1971Q1	13,353.164	0.000	174.629	378.510	1,370.914	399.975	537.290	3,544.226	0.000	1,300.604
1971Q2	11,086.091	0.000	152.369	377.121	1,443.492	410.568	570.095	3,558.417	0.000	1,122.809
1971Q3	10,780.759	0.000	140.917	382.863	1,379.042	387.031	537.130	3,424.295	0.000	875.585
1971Q4	13,350.696	0.000	176.609	540.314	1,826.481	512.191	700.259	5,001.394	0.000	1,109.748
1972Q1	12,775.473	0.000	127.823	308.893	1,340.117	400.963	548.487	3,843.830	0.000	1,280.821
1972Q2	10,848.299	0.000	130.407	457.055	1,375.457	382.355	568.483	3,860.930	0.000	1,131.535
1972Q3	10,709.314	0.000	133.123	366.626	1,357.621	387.572	566.595	3,697.318	0.000	956.576
1972Q4	14,021.155	0.000	192.260	529.828	1,731.138	473.998	648.306	5,127.374	0.000	1,280.523
1973Q1	13,261.446	0.000	148.910	412.852	1,344.463	363.403	529.801	3,939.492	0.000	1,409.121
1973Q2	11,509.666	0.000	136.502	369.081	1,322.247	367.611	570.711	3,952.188	0.000	1,329.410
1973Q3	11,124.029	0.000	132.442	362.484	1,298.884	368.577	547.974	3,646.870	0.000	1,141.148
1973Q4	14,326.452	0.000	164.001	570.587	1,687.590	452.430	662.671	5,161.531	0.000	1,315.191
1974Q1	13,159.542	0.000	146.981	387.233	1,277.883	341.220	524.597	4,108.334	0.000	1,470.031
1974Q2	12,106.510	0.000	128.329	427.471	1,364.114	342.957	568.905	3,807.013	0.000	1,428.792
1974Q3	11,044.809	0.000	110.315	365.206	1,326.537	325.753	525.774	3,333.573	0.000	1,126.553
1974Q4	14,477.115	0.000	138.122	519.574	1,751.119	448.153	704.611	5,068.646	0.000	1,451.157
1975Q1	12,950.709	0.000	102.956	335.463	1,256.771	332.477	543.084	3,768.398	0.000	1,417.620
1975Q2	11,849.559	0.000	108.996	366.161	1,371.323	338.342	625.236	3,593.294	0.000	1,399.421
1975Q3	10,948.269	0.000	89.000	417.646	1,298.032	335.930	643.180	3,225.921	0.000	1,148.537
1975Q4	14,335.914	0.000	111.000	556.588	1,707.734	429.932	710.858	4,867.988	0.000	1,599.298
1976Q1	12,616.371	0.000	105.000	362.717	1,278.451	307.648	545.123	4,017.493	0.000	1,484.357
1976Q2	11,834.552	0.000	80.349	392.220	1,366.803	332.533	552.889	3,465.000	0.000	1,469.397
1976Q3	11,083.705	0.000	79.113	329.121	1,324.755	345.612	540.687	3,416.492	0.000	1,371.038
1976Q4	14,366.756	238.357	116.444	676.753	1,643.713	418.478	683.270	4,898.155	0.000	1,648.209
1977Q1	12,548.028	297.069	84.246	445.958	1,286.547	310.960	553.651	3,868.449	0.000	1,614.213
1977Q2	11,718.739	427.854	101.664	422.106	1,327.097	305.515	535.438	3,955.817	0.000	1,564.013
1977Q3	11,059.791	438.404	90.136	374.901	1,311.801	331.375	590.755	3,755.403	0.000	1,520.283
1977Q4	14,165.816	686.303	118.246	588.437	1,640.958	406.059	669.477	5,168.594	0.000	1,814.938
1978Q1	12,893.112	510.661	82.483	540.910	1,309.075	316.912	547.860	4,258.981	0.000	1,926.564
1978Q2	11,916.381	633.401	88.763	412.994	1,341.898	298.722	603.703	4,360.170	0.000	1,847.315
1978Q3	11,787.766	650.388	79.233	440.823	1,315.165	306.118	599.308	4,218.665	0.000	1,584.599
1978Q4	14,137.079	1,026.562	90.289	631.356	1,679.778	360.601	677.674	5,716.663	0.000	1,809.373
1979Q1	12,717.449	886.711	68.991	461.750	1,370.964	282.467	557.799	4,704.507	0.000	1,880.482
1979Q2	12,013.862	1,005.529	80.498	444.557	1,374.389	282.337	535.990	4,060.354	492.214	1,786.419
1979Q3	11,332.696	1,212.678	80.394	460.788	1,352.370	288.563	564.752	3,319.550	1,008.067	1,674.160
1979Q4	14,743.532	1,759.011	105.893	635.361	1,707.860	356.351	646.194	4,638.831	1,545.015	2,127.456
1980Q1	12,735.254	1,383.941	71.533	488.108	1,327.182	306.966	631.795	3,490.568	1,447.689	1,964.567
1980Q2	11,914.515	1,665.221	88.878	462.770	1,402.661	318.995	672.232	3,752.443	1,358.077	1,857.246
1980Q3	11,514.506	1,465.893	72.456	440.810	1,323.795	325.186	757.855	3,109.081	1,796.840	1,763.332
1980Q4	14,453.760	2,317.436	96.943	632.586	1,682.687	409.365	927.019	4,483.673	2,397.182	2,318.486

Table 127-9 (continued)
Volumes of First-Class, Periodical, and Standard Mail, 1981Q1 - 1990Q4
(millions of pieces)

TIME	VOL01SP	VOL1_3WS	VOL4	VOL5_7	VOL2R	VOL11	VOL12_13	VOL3R_NCR	VOL3R_CR	VOL3N
1981Q1	12,621 783	1,796 134	76 067	518 820	1 313 632	288 925	728 046	3,238 668	2,208 133	2,129 884
1981Q2	11 926 740	1,936 005	84 579	529 343	1,318 203	315 498	737 376	3,739 247	2,208 394	1,988 586
1981Q3	11 164 327	2,186 245	55 023	461 591	1,328 194	324 715	665 059	2,984 073	2,445 784	1,851 990
1981Q4	14,105 890	2,895 067	81 790	640 029	1,735 981	386 580	733 215	4,130 424	3,688 818	2,555 727
1982Q1	12,174 152	2,196 638	86 347	493 858	1,303 442	283 069	684 826	2,970 893	3,234 886	2,252 785
1982Q2	11,211 564	2,895 498	77 076	471 196	1,382 962	298 687	561 855	3,467 138	3,053 755	2,113 680
1982Q3	11,130 788	2,568 848	79 709	511 844	1,378 172	303 152	553 890	2,901 056	3,225 016	1,986 414
1982Q4	13 880 254	3,410 726	104 255	733 178	1,751 994	376 137	597 898	4,314 309	4,180 196	2,675 167
1983Q1	11 989 463	2 808 840	82 269	530 825	1,372 315	300 669	485 221	3 353 386	3,731 426	2,335 568
1983Q2	11,183 689	3 345 248	100 242	529 730	1,404 864	299 961	441 236	3,472 138	3,521 080	2 132 201
1983Q3	11,104 694	3 047 835	105 684	499 513	1,387 771	305 819	490 985	3 122 380	3,786 861	2 097 036
1983Q4	13,639 738	4 089 178	192 785	738 671	1,770 849	394 309	516 045	4,482 621	5,600 764	2,778 492
1984Q1	12,432 740	3 375 866	81 214	564 461	1,361 647	315 667	485 538	3,598 584	4,950 114	2 609 249
1984Q2	11 861 225	3 602 377	78 881	604 725	1,426 658	306 832	480 711	3,969 231	4,599 708	2,435 646
1984Q3	11,261 675	3 682 394	72 958	525 735	1,405 090	316 225	452 515	3 584 562	4,943 952	2,370 256
1984Q4	14,630 415	4 635 146	105 827	806 491	1,872 239	418 604	649 144	5 119 991	6,850 991	2,936 725
1985Q1	13,021 790	3,909 127	78 837	702 561	1,478 442	425 994	497 336	3,997 243	5,770 933	2,855 831
1985Q2	12,055 395	4,351 184	65 914	655 602	1,461 284	394 867	478 111	4,255 685	5,072 410	2,553 632
1985Q3	11,799 436	3,998 660	65 835	543 575	1,470 245	443 118	550 334	3,961 920	5,185 553	2,309 815
1985Q4	14,771 340	5,305 270	137 403	713 593	1,920 292	565 748	648 442	5,329 567	7,276 312	3,213 201
1986Q1	13,482 206	4,439 309	80 983	663 179	1,521 508	449 127	536 602	4,408 675	5,767 421	2,777 888
1986Q2	11,988 465	4,726 811	75 938	694 536	1,568 896	419 747	529 561	4,638 900	5,364 669	2,525 397
1986Q3	12,101 313	4,572 780	97 311	653 930	1 560 041	375 100	555 170	4,522 509	5,581 691	2,331 458
1986Q4	15,245 631	6,126 934	97 747	813 155	1,886 971	488 670	656 484	6,151 363	7,353 749	3,203 484
1987Q1	13,595 558	4,896 451	91 127	655 597	1,491 807	364 752	534 293	5,044 885	6,304 623	2,795 234
1987Q2	12,481 413	5,213 799	91 890	690 306	1,492 362	330 465	538 270	4,992 614	5,900 326	2,464 724
1987Q3	12,205 817	5,104 095	86 942	701 421	1,600 453	349 766	573 520	5,082 024	6,166 337	2,358 135
1987Q4	15,427 926	6,380 620	102 656	897 588	1,941 350	431 511	642 071	6,587 778	8,227 253	3,319 524
1988Q1	14,023 365	5,630 986	91 820	785 145	1,525 123	336 270	584 374	5,525 774	6,880 074	2,873 349
1988Q2	12,880 685	6,032 745	89 142	835 002	1,538 712	340 675	541 281	5,427 715	6,777 223	2,505 528
1988Q3	12,545 793	5,803 909	158 546	706 004	1,538 352	340 914	552 011	5,117 167	6,694 054	2,499 607
1988Q4	15,675 567	7,234 857	158 632	1,287 143	1,975 950	458 655	675 763	6,355 280	8,628 177	3,274 659
1989Q1	13,526 446	6,353 888	166 624	805 719	1,568 381	366 419	591 640	5,292 603	7,214 096	3,229 764
1989Q2	13,431 482	5,999 668	102 261	891 828	1,528 246	354 174	595 529	5,036 859	6,720 567	2,688 904
1989Q3	12,609 336	6,056 403	114 955	816 824	1,575 192	357 827	559 192	5,033 692	6,374 423	2,591 995
1989Q4	15,879 741	7,645 937	155 045	1 147 534	1,844 265	382 182	780 898	6,590 871	8,347 522	3,324 840
1990Q1	13,894 175	6 206 945	135 142	972 532	1,542 590	335 356	605 608	5,494 240	6,747 332	3,130 988
1990Q2	13,530 807	6,705 816	92 343	1 049 624	1,608 063	316 717	576 652	5,550 095	6 188 559	2,718 408
1990Q3	12,704 935	6,490 423	117 601	918 612	1,603 266	303 152	559 105	5,636 050	6,221 521	2,707 398
1990Q4	16,351 891	8,407 337	139 292	1,450 585	2,057 400	423 718	727 429	7,197 700	8,415 418	3,463 968

Table 127-9 (continued)
Volumes of First-Class, Periodical, and Standard Mail, 1991Q1 - 2001Q3
(millions of pieces)

TIME	VOL01SP	VOL1_3WS	VOL4	VOL5_7	VOL2R	VOL11	VOL12_13	VOL3R_NCR	VOL3R_CR	VOL3N
1991Q1	14,303.063	6,472.491	126.900	1,099.405	1,593.148	303.855	562.897	5,685.377	7,238.730	3,281.574
1991Q2	13,528.417	7,208.044	121.851	1,118.884	1,559.954	272.697	460.472	5,538.104	6,177.997	2,718.105
1991Q3	12,485.096	6,490.434	101.377	1,148.596	1,689.565	269.748	557.133	5,070.738	6,047.956	2,532.217
1991Q4	15,537.861	8,891.874	145.728	1,254.404	2,137.749	338.379	646.738	6,626.473	7,789.830	3,401.343
1992Q1	12,854.030	7,472.331	117.678	931.492	1,546.816	213.593	534.133	5,789.795	6,798.534	3,270.574
1992Q2	13,072.659	7,318.314	133.818	919.622	1,503.378	301.471	610.723	5,534.069	5,785.873	2,664.790
1992Q3	12,165.316	7,303.537	136.526	843.529	1,562.509	281.305	589.586	5,455.924	5,761.864	2,677.063
1992Q4	15,928.844	9,413.119	211.106	1,243.066	1,991.992	380.388	734.228	7,324.760	7,627.145	3,305.043
1993Q1	13,278.765	7,136.106	124.412	931.859	1,608.739	256.142	563.124	6,075.935	7,145.618	3,211.211
1993Q2	13,508.189	7,590.415	132.460	951.954	1,515.974	241.324	565.469	5,792.968	6,392.107	2,703.009
1993Q3	12,702.955	7,386.670	120.559	901.175	1,678.822	249.006	544.828	6,082.544	6,207.749	2,704.196
1993Q4	16,042.024	9,727.374	165.125	1,196.980	2,023.016	307.818	675.791	7,966.964	8,087.459	3,301.675
1994Q1	13,254.064	7,644.928	108.908	998.506	1,562.202	253.149	558.240	6,482.711	7,510.150	3,099.186
1994Q2	13,619.476	8,033.758	94.129	996.875	1,529.665	251.362	561.896	6,212.985	6,622.635	2,613.535
1994Q3	12,265.890	8,141.957	106.484	958.766	1,697.359	226.455	556.635	6,349.614	6,915.778	2,841.365
1994Q4	16,221.655	10,222.389	134.495	1,242.789	2,041.695	275.764	649.129	8,475.648	8,829.983	3,258.371
1995Q1	12,907.528	8,500.114	114.736	1,017.848	1,611.157	203.411	595.140	7,246.426	7,963.087	3,361.608
1995Q2	13,226.387	8,892.435	93.474	1,069.798	1,458.147	185.961	539.611	6,721.206	6,832.066	2,808.651
1995Q3	12,151.565	8,820.866	98.010	984.578	1,773.623	200.650	569.891	6,799.678	6,743.377	2,761.099
1995Q4	15,241.535	11,174.269	127.394	1,311.094	2,044.247	303.920	640.034	8,492.913	8,616.949	3,411.780
1996Q1	12,929.988	8,856.517	125.126	1,052.548	1,585.635	211.656	570.450	7,414.456	7,544.273	3,223.877
1996Q2	13,241.881	9,141.381	94.429	1,048.710	1,646.559	191.561	538.106	6,775.705	6,478.358	2,729.604
1996Q3	11,991.012	9,080.145	98.520	991.058	1,637.079	196.602	538.136	7,064.608	6,863.904	2,824.587
1996Q4	15,685.209	10,920.238	138.456	1,377.814	2,080.863	274.005	623.536	9,032.950	8,482.644	3,494.644
1997Q1	12,787.741	8,712.274	160.764	1,197.290	1,651.668	224.193	550.796	7,854.486	8,063.885	3,598.251
1997Q2	13,621.099	9,231.817	184.496	1,076.401	1,641.890	216.018	528.553	7,165.548	6,827.005	2,809.742
1997Q3	12,523.886	9,173.242	144.717	1,054.247	1,743.626	219.316	523.113	7,518.208	7,190.085	2,900.409
1997Q4	15,571.311	11,530.942	129.704	1,370.717	2,159.668	285.530	613.584	9,640.956	9,187.191	3,572.621
1998Q1	12,613.478	9,181.462	118.775	1,203.633	1,637.006	216.937	543.332	8,463.583	8,736.262	3,479.150
1998Q2	13,341.965	9,599.298	82.095	1,191.595	1,641.081	206.739	493.282	7,561.679	7,259.727	2,956.549
1998Q3	12,442.942	9,489.607	93.771	1,154.702	1,737.865	224.188	549.368	8,221.109	7,805.056	3,059.530
1998Q4	15,537.818	12,150.768	114.446	1,530.377	2,138.001	272.353	613.926	10,530.762	10,047.321	3,705.083
1999Q1	12,291.918	9,805.607	104.457	1,205.828	1,638.711	207.046	540.018	9,086.765	9,303.551	3,964.893
1999Q2	13,272.506	10,234.309	83.165	1,125.756	1,630.389	212.839	525.375	8,258.640	7,142.438	3,015.752
1999Q3	12,536.670	10,000.608	101.395	1,083.431	1,774.830	203.852	515.128	9,325.923	7,121.904	3,105.143
1999Q4	15,311.527	12,644.316	131.269	1,432.522	2,161.731	270.751	615.848	11,819.482	9,201.178	3,788.862
2000Q1	12,118.595	10,361.536	63.658	1,242.868	1,604.500	210.771	500.388	10,349.282	8,627.245	3,780.248
2000Q2	13,239.311	10,748.866	51.033	1,147.298	1,682.716	198.079	533.313	9,238.933	7,019.729	3,110.292
2000Q3	12,080.737	10,665.756	59.392	1,292.793	1,703.250	207.633	516.087	10,267.976	7,588.608	3,304.756
2000Q4	14,735.597	13,501.302	31.322	1,541.593	2,153.344	269.258	640.455	12,616.740	9,304.776	3,980.869
2001Q1	11,754.788	10,733.473	25.657	1,315.449	1,616.616	202.213	504.657	11,308.885	8,661.922	4,325.001
2001Q2	13,095.167	11,238.869	36.826	1,177.806	1,657.186	198.858	492.168	9,631.022	6,647.212	3,152.073
2001Q3	11,787.840	10,870.432	88.253	1,202.647	1,718.915	210.888	527.822	10,828.057	7,072.752	3,169.347

Table 127-10
Volumes of Package Services, Miscellaneous Mail, and Special Services, 1971Q1 - 1980Q4
(millions of pieces)

TIME	VOL25	VOL28	VOL29_30	VOL10	VOL31	VOL33	VOL35	VOL36	VOL37	VOL38	VOL_RR	VOL39	VOL_DC
1971Q1	158.338	17.206	67.859	0.000	0.000	3.835	11.691	35.744	14.224	4.479	0.000	41.242	0.000
1971Q2	110.948	24.541	77.505	0.000	0.000	3.829	11.786	23.847	17.220	4.339	0.000	41.975	0.000
1971Q3	115.072	14.495	83.175	0.000	0.000	2.743	12.508	25.277	16.503	4.667	0.000	43.324	0.000
1971Q4	131.530	51.599	92.321	0.000	0.000	4.029	13.896	26.858	18.146	5.186	0.000	52.890	0.000
1972Q1	155.127	17.103	70.685	0.000	0.000	2.324	10.737	37.792	13.576	4.455	0.000	40.540	0.000
1972Q2	105.934	21.348	76.878	0.000	0.000	5.456	12.779	21.601	17.428	4.516	0.000	41.050	0.000
1972Q3	102.988	15.429	68.590	0.000	0.000	5.116	11.971	21.125	18.126	4.656	0.000	40.348	0.000
1972Q4	125.156	44.127	82.010	0.000	0.000	6.982	12.588	26.764	25.785	5.091	0.000	52.718	0.000
1973Q1	141.576	15.085	77.883	0.000	0.000	2.936	10.823	32.523	13.889	4.364	0.000	39.480	0.000
1973Q2	101.937	17.865	86.523	0.000	0.000	4.522	11.442	18.872	18.405	4.512	0.000	40.257	0.000
1973Q3	103.663	8.207	81.392	0.000	0.000	2.379	14.504	21.529	15.967	4.535	0.000	38.641	0.000
1973Q4	116.412	46.612	100.310	0.000	0.000	5.876	17.022	24.918	21.882	4.928	0.000	49.781	0.000
1974Q1	136.964	15.572	71.497	0.000	0.000	4.581	11.971	29.550	14.742	4.072	0.000	36.059	0.000
1974Q2	90.897	18.477	87.613	0.000	0.000	2.298	11.104	20.516	17.858	4.004	0.000	40.251	0.000
1974Q3	89.739	7.920	84.469	0.000	0.000	4.093	12.143	21.116	16.191	4.214	0.000	38.685	0.000
1974Q4	115.651	42.934	95.251	6.509	0.000	5.862	13.849	26.043	18.386	4.665	0.000	55.812	0.000
1975Q1	125.493	12.635	76.577	5.064	0.000	3.371	11.858	33.595	16.074	3.977	0.000	37.562	0.000
1975Q2	84.936	16.501	73.086	5.614	0.000	6.590	10.868	19.649	20.629	3.774	0.000	40.073	0.000
1975Q3	74.479	8.117	71.755	5.352	0.000	3.711	11.875	18.610	17.656	3.851	0.000	40.446	0.000
1975Q4	94.471	41.027	98.534	6.932	0.000	3.869	15.468	23.429	20.765	4.565	0.000	54.338	0.000
1976Q1	105.242	12.346	83.131	5.481	0.000	5.880	12.274	28.690	22.087	3.626	0.000	41.094	0.000
1976Q2	65.459	16.209	82.531	5.573	0.000	4.083	12.031	17.764	16.584	3.618	0.000	40.195	0.000
1976Q3	71.397	6.376	79.920	6.129	0.000	4.808	11.123	18.517	18.929	3.835	0.000	39.994	0.000
1976Q4	93.620	40.467	90.656	8.185	0.000	4.897	12.193	25.744	24.786	4.749	0.000	40.153	0.000
1977Q1	153.316	12.324	76.454	6.235	0.000	2.621	10.996	33.174	17.421	4.565	0.000	32.563	0.000
1977Q2	59.169	19.843	84.558	6.623	0.000	4.970	9.064	17.772	19.076	3.616	0.000	33.898	0.000
1977Q3	57.604	6.178	77.328	6.677	0.000	7.779	8.619	15.548	20.408	3.782	0.000	30.513	0.000
1977Q4	65.402	46.761	95.549	8.681	0.000	9.458	11.587	17.129	23.346	4.341	0.000	37.455	0.000
1978Q1	83.734	12.216	88.644	6.581	0.000	3.724	11.759	25.462	18.058	4.444	0.000	28.999	0.000
1978Q2	58.473	19.218	81.335	7.234	0.000	3.320	8.459	15.026	18.488	4.092	0.000	30.113	0.000
1978Q3	56.561	8.735	90.405	7.815	0.000	7.341	9.889	18.071	21.127	3.277	0.000	29.794	0.000
1978Q4	54.437	47.104	91.823	10.204	0.000	7.431	12.395	14.908	24.457	3.499	0.000	34.130	0.000
1979Q1	66.232	14.091	75.076	7.794	0.000	6.881	10.475	20.589	18.257	3.132	0.000	26.224	0.000
1979Q2	43.116	24.268	74.843	8.201	0.000	5.421	8.272	11.547	20.190	2.756	0.000	26.848	0.000
1979Q3	44.978	11.425	71.251	9.189	0.000	6.563	9.695	13.389	19.020	2.978	0.000	26.707	0.000
1979Q4	49.760	51.657	86.588	11.906	0.000	10.516	12.383	14.047	24.099	3.335	0.000	32.226	0.000
1980Q1	67.161	16.737	74.791	8.693	0.000	6.172	10.465	19.026	21.342	3.207	0.000	25.964	0.000
1980Q2	47.010	29.055	73.611	9.223	0.000	6.868	7.990	11.565	21.563	2.758	0.000	28.022	0.000
1980Q3	42.592	10.768	77.032	9.541	0.000	5.625	9.129	11.275	23.512	2.875	0.000	26.439	0.000
1980Q4	50.079	58.345	81.245	11.613	0.000	7.677	12.118	13.103	27.187	3.843	0.000	34.754	0.000

Table 12?-10 (continued)
Volumes of Package Services, Miscellaneous Mail, and Special Services, 1981Q1 - 2001Q3
(millions of pieces)

TIME	VOL25	VOL28	VOL29_30	VOL10	VOL31	VOL33	VOL35	VOL36	VOL37	VOL38	VOL_RR	VOL39	VOL_DC
1981Q1	61.545	23.069	67.482	9.075	0.000	5.127	10.674	16.905	20.585	3.083	0.000	26.512	0.000
1981Q2	39.976	29.059	67.738	9.423	0.000	16.866	10.066	11.678	22.912	3.105	0.000	28.991	0.000
1981Q3	40.029	13.988	66.034	10.007	0.000	7.458	8.387	10.177	22.758	3.199	0.000	27.222	0.000
1981Q4	44.533	52.363	82.467	13.576	0.000	17.953	11.733	12.933	30.679	3.586	0.000	33.919	0.000
1982Q1	48.830	34.388	62.301	9.766	0.000	8.352	9.253	14.493	22.284	2.960	0.000	25.932	0.000
1982Q2	37.657	37.661	60.145	10.007	0.000	5.304	8.414	10.187	23.966	2.910	0.000	25.953	0.000
1982Q3	38.367	18.354	65.090	9.766	0.000	6.288	9.388	10.312	25.511	4.048	0.000	24.448	0.000
1982Q4	41.921	74.325	74.624	12.536	0.000	10.413	12.045	12.286	33.590	3.361	0.000	32.772	0.000
1983Q1	50.698	25.814	58.887	9.941	0.000	6.966	10.426	15.667	20.749	2.817	0.000	25.631	0.000
1983Q2	37.850	37.937	54.789	8.437	0.000	10.127	8.681	10.670	25.793	2.765	0.000	26.117	0.000
1983Q3	33.519	18.566	56.969	8.060	0.000	7.822	9.098	10.044	27.423	2.859	0.000	28.495	0.000
1983Q4	40.266	84.639	65.080	10.150	0.000	13.473	11.787	12.261	36.945	3.344	0.000	34.967	0.000
1984Q1	52.665	27.225	60.824	8.399	0.000	9.785	9.668	16.263	27.039	2.737	0.000	26.479	0.000
1984Q2	36.092	37.262	59.175	7.777	0.000	7.232	8.347	9.457	26.080	2.866	0.000	26.172	0.000
1984Q3	33.483	31.122	60.154	8.123	0.000	7.028	10.215	9.607	28.815	2.829	0.000	28.140	0.000
1984Q4	39.489	98.327	61.766	10.029	0.000	7.943	12.365	11.621	42.032	3.491	0.000	34.394	0.000
1985Q1	47.391	30.205	57.495	7.453	0.000	5.831	8.709	15.146	27.618	2.934	0.000	26.698	0.000
1985Q2	34.115	46.660	50.039	6.795	0.000	6.708	8.019	8.646	30.330	2.619	0.000	25.342	0.000
1985Q3	32.343	24.906	50.088	7.294	0.000	6.325	8.895	8.992	32.390	2.382	0.000	27.371	0.000
1985Q4	37.469	108.944	53.178	8.496	0.000	8.641	10.876	9.776	40.049	3.060	0.000	38.301	0.000
1986Q1	41.689	43.049	49.320	6.377	0.000	5.591	8.885	14.513	32.314	2.535	0.000	31.160	0.000
1986Q2	34.888	52.679	54.317	6.323	0.000	10.533	7.992	8.154	33.685	2.206	0.000	29.436	0.000
1986Q3	29.635	34.576	44.069	6.512	0.000	5.164	8.454	8.184	32.770	2.501	0.000	31.734	0.000
1986Q4	35.354	117.507	61.968	7.323	0.000	14.167	10.848	9.521	47.605	3.107	0.000	40.619	0.000
1987Q1	43.604	44.994	61.765	5.388	0.000	4.586	8.023	14.001	38.691	2.580	0.000	32.672	0.000
1987Q2	33.377	57.104	50.507	4.507	0.000	6.869	8.474	7.679	35.758	2.344	0.000	31.745	0.000
1987Q3	32.413	37.504	44.047	5.304	0.000	16.239	8.797	8.385	36.716	2.537	0.000	34.193	0.000
1987Q4	33.703	114.024	59.137	6.651	0.000	13.296	9.844	9.723	48.189	2.922	0.000	43.121	0.000
1988Q1	45.384	57.130	58.605	5.465	131.666	11.278	9.613	12.850	41.225	2.390	0.000	33.809	0.000
1988Q2	33.658	71.244	57.273	4.393	96.821	9.947	7.884	7.142	45.400	2.170	0.000	31.655	0.000
1988Q3	29.154	46.510	45.791	4.486	138.047	9.800	8.627	6.631	40.479	2.205	0.000	33.602	0.000
1988Q4	33.779	128.435	58.529	5.277	160.376	6.633	11.061	8.313	48.709	2.783	0.000	43.548	0.000
1989Q1	33.229	59.788	47.371	3.861	140.421	7.537	8.553	10.279	43.088	2.759	0.000	33.772	0.000
1989Q2	31.293	81.461	42.610	4.157	118.202	6.831	7.046	8.416	35.513	2.534	0.000	34.032	0.000
1989Q3	24.525	53.278	46.541	4.232	113.271	6.128	7.503	7.575	43.783	1.902	0.000	35.782	0.000
1989Q4	31.812	117.180	56.615	4.641	153.228	6.987	10.428	8.611	53.858	2.821	0.000	46.489	0.000
1990Q1	34.482	60.668	49.667	3.345	158.236	8.884	8.651	9.591	45.197	2.300	0.000	34.103	0.000
1990Q2	31.694	83.066	43.493	3.252	123.599	6.374	6.345	7.820	41.903	2.346	0.000	35.600	0.000
1990Q3	29.515	57.804	44.582	3.243	107.146	9.283	7.525	7.013	47.892	2.221	0.000	36.768	0.000
1990Q4	33.009	142.930	52.679	4.145	152.168	10.868	10.127	8.865	55.802	3.041	0.000	48.377	0.000

Table 127-10 (continued)
Volumes of Package Services, Miscellaneous Mail, and Special Services, 1991Q1 - 2001Q3
(millions of pieces)

TIME	VOL25	VOL28	VOL29_30	VOL10	VOL31	VOL33	VOL35	VOL36	VOL37	VOL38	VOL_RR	VOL39	VOL_DC
1991Q1	35.309	71.054	57.700	2.833	164.429	6.895	7.258	9.558	49.190	2.144	0.000	35.048	0.000
1991Q2	35.127	81.777	44.388	2.796	149.176	9.694	6.170	6.885	43.740	1.940	0.000	36.749	0.000
1991Q3	31.092	59.277	44.018	2.903	126.468	8.140	6.917	8.942	46.939	2.094	0.000	38.447	0.000
1991Q4	36.929	147.412	48.325	3.510	172.300	10.806	8.306	10.204	67.784	2.524	0.000	51.429	0.000
1992Q1	39.299	82.370	61.510	0.826	158.396	8.903	5.973	9.513	47.318	1.862	0.000	37.494	0.000
1992Q2	35.471	93.656	49.694	1.879	113.092	7.675	5.897	8.883	46.605	1.856	0.000	41.118	0.000
1992Q3	44.972	69.035	42.523	2.427	141.217	17.881	6.043	7.038	54.130	2.000	0.000	42.210	0.000
1992Q4	44.461	141.389	53.952	2.320	139.908	11.652	7.271	8.738	68.268	2.486	0.000	55.411	0.000
1993Q1	54.693	82.957	53.925	1.790	139.714	8.928	5.965	9.036	57.917	1.805	44.921	40.660	0.000
1993Q2	53.208	85.277	51.353	2.465	122.292	10.871	5.433	7.578	52.335	1.636	42.198	43.036	0.000
1993Q3	57.073	65.508	49.197	1.674	138.877	8.603	5.756	6.404	57.829	1.628	45.522	44.469	0.000
1993Q4	67.870	120.227	53.725	1.224	154.116	23.678	6.720	8.528	72.157	1.789	54.693	57.348	0.000
1994Q1	70.064	82.595	54.756	1.156	131.220	16.281	5.296	9.256	62.108	1.403	43.411	43.148	0.000
1994Q2	64.434	93.418	56.736	1.642	87.279	9.944	5.158	7.952	54.047	1.195	39.961	45.471	0.000
1994Q3	59.302	92.318	54.937	0.996	128.959	12.015	5.363	6.850	61.759	1.333	49.238	47.146	0.000
1994Q4	65.172	144.836	64.350	1.351	114.036	13.060	6.740	8.834	67.215	1.610	53.693	60.050	0.000
1995Q1	72.943	100.865	62.767	0.899	149.311	12.426	5.317	8.553	56.836	1.227	47.420	45.331	0.000
1995Q2	67.568	105.086	53.389	1.197	74.272	14.217	4.626	7.376	52.363	1.333	61.486	47.529	0.000
1995Q3	55.575	91.736	59.426	1.148	107.135	9.097	5.001	5.466	67.735	1.229	55.539	47.658	0.000
1995Q4	62.758	166.087	68.120	0.824	87.612	14.991	5.740	7.407	82.040	1.549	65.014	59.754	0.000
1996Q1	70.182	121.983	57.041	0.577	105.030	15.049	3.510	7.406	59.638	1.169	50.091	46.148	0.000
1996Q2	64.046	114.106	51.004	1.264	80.518	6.959	4.550	7.603	57.309	1.131	48.352	43.236	0.000
1996Q3	59.465	96.558	53.210	1.144	83.421	10.405	4.448	5.662	66.154	1.138	56.661	49.704	0.000
1996Q4	68.801	178.423	61.050	1.213	96.487	17.656	5.828	8.207	84.360	1.415	72.607	72.422	0.000
1997Q1	75.820	142.690	59.847	1.354	81.961	12.340	4.153	8.250	71.122	1.039	65.774	47.213	0.000
1997Q2	70.938	98.301	50.017	1.847	88.346	10.306	3.826	8.293	59.506	1.019	62.040	45.649	0.000
1997Q3	59.976	98.785	56.581	0.957	92.297	12.234	3.739	6.488	69.605	1.051	61.786	50.543	0.000
1997Q4	84.915	173.748	65.597	1.247	114.046	18.153	4.659	10.718	85.769	1.559	73.835	63.542	0.000
1998Q1	86.642	116.691	56.507	1.001	88.979	13.532	3.631	7.824	68.968	1.034	55.194	47.462	0.000
1998Q2	78.201	121.301	45.290	1.055	84.053	11.043	3.562	11.122	55.455	0.909	48.841	45.948	0.000
1998Q3	70.942	88.538	50.848	0.980	94.425	11.627	3.965	9.178	73.608	0.954	64.267	50.221	0.000
1998Q4	84.206	166.136	65.493	1.244	109.967	16.615	4.124	11.915	79.517	1.022	67.562	63.759	0.000
1999Q1	94.821	112.815	55.308	1.107	97.982	12.159	3.502	10.382	63.352	1.168	55.420	49.126	0.000
1999Q2	82.068	116.921	57.393	0.978	80.852	13.032	3.501	13.605	56.392	0.901	45.432	47.260	0.652
1999Q3	69.091	95.329	53.217	1.055	94.962	11.737	3.030	10.438	72.677	0.927	62.951	54.190	5.758
1999Q4	80.041	163.562	62.335	1.166	108.186	15.791	3.736	13.630	74.647	1.029	64.808	68.483	11.128
2000Q1	87.375	118.111	59.402	0.831	82.490	12.640	3.395	13.200	66.107	0.776	58.214	52.360	19.936
2000Q2	81.165	128.245	61.162	0.671	73.808	10.311	3.129	16.212	51.805	0.843	45.326	52.628	27.648
2000Q3	73.562	107.191	56.732	0.846	87.635	10.617	3.023	12.136	68.836	0.923	61.013	56.326	29.148
2000Q4	80.971	191.732	67.030	1.085	114.108	13.015	3.755	16.117	82.345	1.476	68.857	69.755	40.471
2001Q1	84.764	124.696	45.078	0.870	87.598	10.869	2.861	14.111	64.642	0.754	55.865	52.403	39.126
2001Q2	92.907	132.060	39.491	0.905	82.227	8.481	2.879	18.340	58.081	0.685	49.830	53.379	47.156
2001Q3	80.372	116.708	45.897	0.746	98.350	10.661	2.842	13.314	72.788	0.649	61.495	57.073	41.895

Table 127-11
Price Indices for First-Class Mail, 1970Q1 - 1980Q4
(dollars)

TIME	PX01SP	PX1_3WSU	PX1_3U	D1_3WS	PX4	PX05SP	PX5_7WSU	PX5_7U
1970Q1	$0.083639	$0.063070	$0.072527	$0.272715	$0.050000	$0.050342	$0.050000	$0.050308
1970Q2	$0.083639	$0.063070	$0.072527	$0.275586	$0.050000	$0.050342	$0.050000	$0.050308
1970Q3	$0.083639	$0.063070	$0.072527	$0.278448	$0.050000	$0.050342	$0.050000	$0.050308
1970Q4	$0.083639	$0.063070	$0.072527	$0.281487	$0.050000	$0.050342	$0.050000	$0.050308
1971Q1	$0.083639	$0.063070	$0.072527	$0.285367	$0.050000	$0.050342	$0.050000	$0.050308
1971Q2	$0.083639	$0.063070	$0.072527	$0.287778	$0.050000	$0.050342	$0.050000	$0.050308
1971Q3	$0.096897	$0.073422	$0.084174	$0.290865	$0.054924	$0.055540	$0.054924	$0.055383
1971Q4	$0.110562	$0.084093	$0.096180	$0.293864	$0.060000	$0.060898	$0.060000	$0.060615
1972Q1	$0.110562	$0.084093	$0.096180	$0.295971	$0.060000	$0.060898	$0.060000	$0.060615
1972Q2	$0.110562	$0.084093	$0.096180	$0.298883	$0.060000	$0.060898	$0.060000	$0.060615
1972Q3	$0.110562	$0.084093	$0.096180	$0.300595	$0.060000	$0.060898	$0.060000	$0.060615
1972Q4	$0.110562	$0.084093	$0.096180	$0.303317	$0.060000	$0.060898	$0.060000	$0.060615
1973Q1	$0.110562	$0.084093	$0.096180	$0.306063	$0.060000	$0.060898	$0.060000	$0.060615
1973Q2	$0.110562	$0.084093	$0.096180	$0.309663	$0.060000	$0.060898	$0.060000	$0.060615
1973Q3	$0.110562	$0.084093	$0.096180	$0.315369	$0.060000	$0.060898	$0.060000	$0.060615
1973Q4	$0.110562	$0.084093	$0.096180	$0.321416	$0.060000	$0.060898	$0.060000	$0.060615
1974Q1	$0.110562	$0.084093	$0.096180	$0.328534	$0.060000	$0.060898	$0.060000	$0.060615
1974Q2	$0.119673	$0.091101	$0.104139	$0.337665	$0.066667	$0.067529	$0.066667	$0.067282
1974Q3	$0.137895	$0.105116	$0.120057	$0.346495	$0.080000	$0.080792	$0.080000	$0.080615
1974Q4	$0.137895	$0.105116	$0.120057	$0.356143	$0.080000	$0.080792	$0.080000	$0.080615
1975Q1	$0.137895	$0.105116	$0.120057	$0.365464	$0.080000	$0.080792	$0.080000	$0.080615
1975Q2	$0.137895	$0.105116	$0.120057	$0.371645	$0.080000	$0.080792	$0.080000	$0.080615
1975Q3	$0.137895	$0.105116	$0.120057	$0.375715	$0.080000	$0.080792	$0.080000	$0.080615
1975Q4	$0.136824	$0.104991	$0.119419	$0.382853	$0.077557	$0.078510	$0.077557	$0.078247
1976Q1	$0.135234	$0.106015	$0.118986	$0.389561	$0.070909	$0.072386	$0.070909	$0.071846
1976Q2	$0.171362	$0.135628	$0.151323	$0.393322	$0.090000	$0.091956	$0.090000	$0.091231
1976Q3	$0.171362	$0.135628	$0.151323	$0.396328	$0.090000	$0.091956	$0.090000	$0.091231
1976Q4	$0.171362	$0.127688	$0.152772	$0.007940	$0.090000	$0.091956	$0.086944	$0.087614
1977Q1	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082563	$0.086996
1977Q2	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082574	$0.086986
1977Q3	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082585	$0.086978
1977Q4	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082596	$0.086989
1978Q1	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082607	$0.087114
1978Q2	$0.171362	$0.126373	$0.152213	$0.009255	$0.090000	$0.091956	$0.082617	$0.087013
1978Q3	$0.177988	$0.129226	$0.157233	$0.011498	$0.092424	$0.094515	$0.085054	$0.089494
1978Q4	$0.198695	$0.138142	$0.172921	$0.018509	$0.100000	$0.102512	$0.092642	$0.097312
1979Q1	$0.198695	$0.138142	$0.172921	$0.018509	$0.100000	$0.102512	$0.092655	$0.097290
1979Q2	$0.198695	$0.138142	$0.172921	$0.018509	$0.100000	$0.102512	$0.095273	$0.097564
1979Q3	$0.198695	$0.138142	$0.172921	$0.018509	$0.100000	$0.102512	$0.092680	$0.097313
1979Q4	$0.198988	$0.138213	$0.173119	$0.018509	$0.100000	$0.102512	$0.092695	$0.097310
1980Q1	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092710	$0.097388
1980Q2	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092725	$0.097364
1980Q3	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092738	$0.097376
1980Q4	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092750	$0.097406

Table 127-11 (continued)
Price Indices for First-Class Mail, 1981Q1 - 1990Q4
(dollars)

TIME	PX01SP	PX1_3WSU	PX1_3U	D1_3WS	PX4	PX05SP	PX5_7WSU	PX5_7U
1981Q1	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092761	$0.097319
1981Q2	$0.199139	$0.138249	$0.173222	$0.018509	$0.100000	$0.102512	$0.092771	$0.097494
1981Q3	$0.243080	$0.160065	$0.207745	$0.028531	$0.119848	$0.122859	$0.111006	$0.116639
1981Q4	$0.243416	$0.160242	$0.208010	$0.028607	$0.120000	$0.123014	$0.111264	$0.116880
1982Q1	$0.257278	$0.173430	$0.221583	$0.028607	$0.126591	$0.129972	$0.118018	$0.123562
1982Q2	$0.264447	$0.180247	$0.228604	$0.028607	$0.130000	$0.133570	$0.121862	$0.127298
1982Q3	$0.264447	$0.180247	$0.228604	$0.028607	$0.130000	$0.133570	$0.121815	$0.127215
1982Q4	$0.264447	$0.180254	$0.228605	$0.028607	$0.130000	$0.133570	$0.121576	$0.127403
1983Q1	$0.264447	$0.180256	$0.228605	$0.028607	$0.130000	$0.133570	$0.121859	$0.127202
1983Q2	$0.264447	$0.180260	$0.228608	$0.028607	$0.130000	$0.133570	$0.122001	$0.127436
1983Q3	$0.264447	$0.180261	$0.228607	$0.028607	$0.130000	$0.133570	$0.121909	$0.127270
1983Q4	$0.264447	$0.180264	$0.228608	$0.028607	$0.130000	$0.133570	$0.121911	$0.127426
1984Q1	$0.264447	$0.177320	$0.227355	$0.031549	$0.130000	$0.133570	$0.119706	$0.126204
1984Q2	$0.264447	$0.177039	$0.227234	$0.031843	$0.130000	$0.133570	$0.119656	$0.126289
1984Q3	$0.264447	$0.177060	$0.227240	$0.031843	$0.130000	$0.133570	$0.119665	$0.126107
1984Q4	$0.264447	$0.177130	$0.227256	$0.031843	$0.130000	$0.133570	$0.119539	$0.126220
1985Q1	$0.264447	$0.177226	$0.227277	$0.031843	$0.130000	$0.133570	$0.120045	$0.126081
1985Q2	$0.271319	$0.180752	$0.232729	$0.034858	$0.133258	$0.137009	$0.122779	$0.129323
1985Q3	$0.285543	$0.188059	$0.243997	$0.041098	$0.140000	$0.144126	$0.128490	$0.135740
1985Q4	$0.285543	$0.188124	$0.244017	$0.041098	$0.140000	$0.144126	$0.128557	$0.135753
1986Q1	$0.285543	$0.188147	$0.244017	$0.041098	$0.140000	$0.144126	$0.128973	$0.136128
1986Q2	$0.285543	$0.188169	$0.244037	$0.041098	$0.140000	$0.144126	$0.130557	$0.136013
1986Q3	$0.285543	$0.188156	$0.244030	$0.041098	$0.140000	$0.144126	$0.128513	$0.135928
1986Q4	$0.285543	$0.188114	$0.244023	$0.041098	$0.140000	$0.144126	$0.129202	$0.136027
1987Q1	$0.285543	$0.188063	$0.244001	$0.041098	$0.140000	$0.144126	$0.128437	$0.135745
1987Q2	$0.285543	$0.187865	$0.243952	$0.041098	$0.140000	$0.144126	$0.128349	$0.135879
1987Q3	$0.285543	$0.188037	$0.244003	$0.041098	$0.140000	$0.144126	$0.128951	$0.136033
1987Q4	$0.285543	$0.187834	$0.243943	$0.041098	$0.140000	$0.144126	$0.128895	$0.135809
1988Q1	$0.285543	$0.187841	$0.243944	$0.041098	$0.140000	$0.144126	$0.128371	$0.135799
1988Q2	$0.285543	$0.187992	$0.243995	$0.041098	$0.140000	$0.144126	$0.128071	$0.135960
1988Q3	$0.315982	$0.209786	$0.270770	$0.042573	$0.147424	$0.152415	$0.131105	$0.140760
1988Q4	$0.326542	$0.217590	$0.280136	$0.043085	$0.150000	$0.155291	$0.130062	$0.141719
1989Q1	$0.326542	$0.217576	$0.280132	$0.043085	$0.150000	$0.155291	$0.129821	$0.141986
1989Q2	$0.326542	$0.217445	$0.280089	$0.043085	$0.150000	$0.155291	$0.130877	$0.142381
1989Q3	$0.326542	$0.217522	$0.280116	$0.043085	$0.150000	$0.155291	$0.131567	$0.142545
1989Q4	$0.326542	$0.217476	$0.280101	$0.043085	$0.150000	$0.155291	$0.131060	$0.142458
1990Q1	$0.326542	$0.217625	$0.280144	$0.043085	$0.150000	$0.155291	$0.131202	$0.142406
1990Q2	$0.326542	$0.217542	$0.280124	$0.043085	$0.150000	$0.155291	$0.133504	$0.143488
1990Q3	$0.326542	$0.217625	$0.280154	$0.043085	$0.150000	$0.155291	$0.132097	$0.142834
1990Q4	$0.326542	$0.217451	$0.280095	$0.043085	$0.150000	$0.155291	$0.132481	$0.143299

Table 127-11 (continued)
Price Indices for First-Class Mail, 1991Q1 - 2001Q3
(dollars)

TIME	PX01SP	PX1_3WSU	PX1_3U	D1_3WS	PX4	PX05SP	PX5_7WSU	PX5_7U
1991Q1	$0.326542	$0.217611	$0.280141	$0.043085	$0.150000	$0.155291	$0.131599	$0.143302
1991Q2	$0.347616	$0.232756	$0.298692	$0.045072	$0.166364	$0.171567	$0.147542	$0.159370
1991Q3	$0.378057	$0.254829	$0.325535	$0.047942	$0.190000	$0.195077	$0.168842	$0.181896
1991Q4	$0.378057	$0.255032	$0.325627	$0.047942	$0.190000	$0.195077	$0.168894	$0.181574
1992Q1	$0.378057	$0.255106	$0.325658	$0.047942	$0.190000	$0.195077	$0.170007	$0.181649
1992Q2	$0.378057	$0.255103	$0.325647	$0.047942	$0.190000	$0.195077	$0.168866	$0.181319
1992Q3	$0.378057	$0.255120	$0.325672	$0.047942	$0.190000	$0.195077	$0.169867	$0.181752
1992Q4	$0.378057	$0.255130	$0.325671	$0.047942	$0.190000	$0.195077	$0.169208	$0.181357
1993Q1	$0.378057	$0.255115	$0.325638	$0.047982	$0.190000	$0.195077	$0.170758	$0.181930
1993Q2	$0.378057	$0.255086	$0.325639	$0.047982	$0.190000	$0.195077	$0.171579	$0.182431
1993Q3	$0.378057	$0.255095	$0.325652	$0.047982	$0.190000	$0.195077	$0.170454	$0.181993
1993Q4	$0.378057	$0.255052	$0.325647	$0.047982	$0.190000	$0.195077	$0.170474	$0.182333
1994Q1	$0.378057	$0.254981	$0.325608	$0.047982	$0.190000	$0.195077	$0.170733	$0.182051
1994Q2	$0.378057	$0.254920	$0.325591	$0.047982	$0.190000	$0.195077	$0.170213	$0.182246
1994Q3	$0.378057	$0.254892	$0.325607	$0.047982	$0.190000	$0.195077	$0.169766	$0.181871
1994Q4	$0.378057	$0.254831	$0.325572	$0.047982	$0.190000	$0.195077	$0.169876	$0.182134
1995Q1	$0.378057	$0.254826	$0.325579	$0.047982	$0.190000	$0.195077	$0.170633	$0.182202
1995Q2	$0.401526	$0.273813	$0.347143	$0.051361	$0.197424	$0.203366	$0.176022	$0.189733
1995Q3	$0.409668	$0.280375	$0.354631	$0.052533	$0.200000	$0.206242	$0.178405	$0.191996
1995Q4	$0.409668	$0.280346	$0.354621	$0.052533	$0.200000	$0.206242	$0.178558	$0.192171
1996Q1	$0.409668	$0.280254	$0.354568	$0.052533	$0.200000	$0.206242	$0.179936	$0.192568
1996Q2	$0.409668	$0.280184	$0.354541	$0.052533	$0.200000	$0.206242	$0.178851	$0.192689
1996Q3	$0.409668	$0.280145	$0.354541	$0.052533	$0.200000	$0.206242	$0.178998	$0.192279
1996Q4	$0.409668	$0.277983	$0.351780	$0.057056	$0.200000	$0.206242	$0.181697	$0.193117
1997Q1	$0.409668	$0.276473	$0.347137	$0.066748	$0.200000	$0.206242	$0.178978	$0.190883
1997Q2	$0.409668	$0.275584	$0.346768	$0.066748	$0.200000	$0.206242	$0.177045	$0.191061
1997Q3	$0.409668	$0.275158	$0.346720	$0.066748	$0.200000	$0.206242	$0.179348	$0.191112
1997Q4	$0.409668	$0.274372	$0.346403	$0.066748	$0.200000	$0.206242	$0.178889	$0.191300
1998Q1	$0.409668	$0.274819	$0.346567	$0.066748	$0.200000	$0.206242	$0.179282	$0.190886
1998Q2	$0.409668	$0.275163	$0.346693	$0.066748	$0.200000	$0.206242	$0.176663	$0.191101
1998Q3	$0.409668	$0.275647	$0.346997	$0.066748	$0.200000	$0.206242	$0.178446	$0.191198
1998Q4	$0.409668	$0.273225	$0.345978	$0.066748	$0.200000	$0.206242	$0.177827	$0.190988
1999Q1	$0.409668	$0.274066	$0.346374	$0.066748	$0.200000	$0.206242	$0.178204	$0.191147
1999Q2	$0.413186	$0.279620	$0.350735	$0.068514	$0.205758	$0.206202	$0.177083	$0.191423
1999Q3	$0.415778	$0.282091	$0.353338	$0.069816	$0.210000	$0.206172	$0.178921	$0.191110
1999Q4	$0.415778	$0.280676	$0.352760	$0.069816	$0.210000	$0.206172	$0.178498	$0.191152
2000Q1	$0.415778	$0.282549	$0.353673	$0.069816	$0.210000	$0.206172	$0.178453	$0.191182
2000Q2	$0.415778	$0.281610	$0.353154	$0.069816	$0.210000	$0.206172	$0.177215	$0.191308
2000Q3	$0.415778	$0.282299	$0.353618	$0.069816	$0.210000	$0.206172	$0.178242	$0.191137
2000Q4	$0.415778	$0.281450	$0.353281	$0.069816	$0.210000	$0.206172	$0.177807	$0.191145
2001Q1	$0.415778	$0.281246	$0.353178	$0.069816	$0.210000	$0.206172	$0.177477	$0.190952
2001Q2	$0.419426	$0.288300	$0.358303	$0.070850	$0.215758	$0.206288	$0.176006	$0.190935
2001Q3	$0.422115	$0.295182	$0.363159	$0.071611	$0.220000	$0.206373	$0.177055	$0.191126

Table 127-12
Price Indices for Periodical, Standard, and Parcel Post Mail, 1970Q1 - 1980Q4
(dollars)

TIME	PX2R	PX11	PX12_13	PX3R_NCRU	PX3R_CR	PX3NU	PX25	PX_PR_PP	PX_UPS_R
1970Q1	$0.028687	$0.005289	$0.006562	$0.045212	$0.045383	$0.016650	$0.863626	$2.898786	$0.613265
1970Q2	$0.030571	$0.005475	$0.007331	$0.045212	$0.045383	$0.016650	$0.863626	$2.898786	$0.613265
1970Q3	$0.030571	$0.005475	$0.007331	$0.045212	$0.045383	$0.016650	$0.863626	$2.898786	$0.613265
1970Q4	$0.030571	$0.005475	$0.007331	$0.045212	$0.045383	$0.016650	$0.863626	$2.898786	$0.706865
1971Q1	$0.030571	$0.005475	$0.007378	$0.045212	$0.045383	$0.016650	$0.875570	$2.898786	$0.749410
1971Q2	$0.030571	$0.005475	$0.007806	$0.045212	$0.045383	$0.016650	$0.984902	$2.898786	$0.771177
1971Q3	$0.032500	$0.005844	$0.008428	$0.046369	$0.046493	$0.017120	$0.984902	$2.952229	$0.802618
1971Q4	$0.034489	$0.006224	$0.009069	$0.047561	$0.047636	$0.017605	$0.984902	$3.007315	$0.802618
1972Q1	$0.034489	$0.006224	$0.009069	$0.047561	$0.047636	$0.017605	$0.984902	$3.007315	$0.802618
1972Q2	$0.034489	$0.006224	$0.009069	$0.049919	$0.049949	$0.017605	$0.984902	$3.007315	$0.802618
1972Q3	$0.034489	$0.006224	$0.009069	$0.057285	$0.057178	$0.017605	$0.984902	$3.007315	$0.802618
1972Q4	$0.035256	$0.006583	$0.010450	$0.057264	$0.056395	$0.017605	$0.984902	$3.007315	$0.802618
1973Q1	$0.035343	$0.006624	$0.010607	$0.057261	$0.056305	$0.017605	$0.984902	$3.007315	$0.802618
1973Q2	$0.035343	$0.006624	$0.010607	$0.057261	$0.056305	$0.017605	$0.984902	$3.007315	$0.802618
1973Q3	$0.035343	$0.006624	$0.010607	$0.057261	$0.056305	$0.017605	$0.984902	$3.007315	$0.802618
1973Q4	$0.036774	$0.006976	$0.011431	$0.057261	$0.056305	$0.017631	$0.984902	$3.007315	$0.802618
1974Q1	$0.040007	$0.007773	$0.013294	$0.057261	$0.056305	$0.017691	$0.984902	$3.007315	$0.802618
1974Q2	$0.041412	$0.008385	$0.013669	$0.062224	$0.061068	$0.017691	$1.001619	$3.029518	$0.802618
1974Q3	$0.044222	$0.009609	$0.014418	$0.072148	$0.070595	$0.017691	$1.035052	$3.073922	$0.899735
1974Q4	$0.045429	$0.009609	$0.014747	$0.072148	$0.070595	$0.018526	$1.035052	$3.073922	$0.899735
1975Q1	$0.045602	$0.009609	$0.014794	$0.072148	$0.070595	$0.018645	$1.035052	$3.073922	$0.899735
1975Q2	$0.045602	$0.009609	$0.014794	$0.072148	$0.070595	$0.018645	$1.035052	$3.073922	$1.000004
1975Q3	$0.045602	$0.009609	$0.014794	$0.072148	$0.070595	$0.018645	$1.035052	$3.073922	$1.000769
1975Q4	$0.048205	$0.010615	$0.016157	$0.072148	$0.070595	$0.018682	$1.058926	$3.073922	$1.000769
1976Q1	$0.048783	$0.010803	$0.016583	$0.072916	$0.071404	$0.018794	$1.138858	$3.071739	$1.000769
1976Q2	$0.051715	$0.011183	$0.018010	$0.089036	$0.088410	$0.018794	$1.266723	$3.025889	$1.000769
1976Q3	$0.051715	$0.011183	$0.018010	$0.089036	$0.088410	$0.018794	$1.266723	$3.025889	$1.000769
1976Q4	$0.058525	$0.013140	$0.020655	$0.086203	$0.085020	$0.020434	$1.266723	$3.025889	$1.021520
1977Q1	$0.059723	$0.013632	$0.021132	$0.085230	$0.083856	$0.020851	$1.266723	$3.025889	$1.038035
1977Q2	$0.059723	$0.013632	$0.021132	$0.085230	$0.083856	$0.020851	$1.266723	$3.025889	$1.081998
1977Q3	$0.059723	$0.013632	$0.021132	$0.085230	$0.083856	$0.020851	$1.266723	$3.025889	$1.086394
1977Q4	$0.068902	$0.015430	$0.024751	$0.085230	$0.083856	$0.021713	$1.266723	$3.025889	$1.156374
1978Q1	$0.070565	$0.015755	$0.025407	$0.085230	$0.083856	$0.021869	$1.266723	$3.025889	$1.166893
1978Q2	$0.070565	$0.015755	$0.025407	$0.085230	$0.083856	$0.021869	$1.266723	$3.025889	$1.166893
1978Q3	$0.072535	$0.015271	$0.026020	$0.087654	$0.086072	$0.022599	$1.386659	$3.008748	$1.207142
1978Q4	$0.094478	$0.017179	$0.032756	$0.095229	$0.092998	$0.027521	$1.761459	$2.955180	$1.236799
1979Q1	$0.097592	$0.017853	$0.033707	$0.095229	$0.092998	$0.028042	$1.761459	$2.955180	$1.236799
1979Q2	$0.097592	$0.017853	$0.033707	$0.095229	$0.083112	$0.028042	$1.761459	$2.955180	$1.236799
1979Q3	$0.097592	$0.017853	$0.033707	$0.095229	$0.077998	$0.028042	$1.761459	$2.955180	$1.296623
1979Q4	$0.113527	$0.020178	$0.038622	$0.095229	$0.077998	$0.031433	$1.761459	$2.955180	$1.365939
1980Q1	$0.116934	$0.020675	$0.039673	$0.095229	$0.077998	$0.032158	$1.761459	$2.955180	$1.425160
1980Q2	$0.116934	$0.020675	$0.039673	$0.095229	$0.077998	$0.032158	$1.761459	$2.955180	$1.449189
1980Q3	$0.116934	$0.020675	$0.039673	$0.095229	$0.076740	$0.032008	$1.761459	$2.955180	$1.521657
1980Q4	$0.117351	$0.023758	$0.045267	$0.095229	$0.075998	$0.034736	$1.761459	$2.955180	$1.572586

Table 127-12 (continued)
Price Indices for Periodical, Standard, and Parcel Post Mail, 1981Q1 - 1990Q4
(dollars)

TIME	PX2R	PX11	PX12_13	PX3R_NCRU	PX3R_CR	PX3NU	PX25	PX_PR_PP	PX_UPS_R
1981Q1	$0.117451	$0.024496	$0.046606	$0.095229	$0.075998	$0.035411	$1.761459	$2.955180	$1.618016
1981Q2	$0.117451	$0.024496	$0.046606	$0.095229	$0.075998	$0.035411	$1.761459	$2.955180	$1.640732
1981Q3	$0.125557	$0.024768	$0.046161	$0.094590	$0.063699	$0.033518	$1.877489	$4.234832	$1.682495
1981Q4	$0.125631	$0.025056	$0.040842	$0.094586	$0.063606	$0.030157	$1.878375	$4.244600	$1.721802
1982Q1	$0.128196	$0.024285	$0.038482	$0.103246	$0.078379	$0.029405	$1.878375	$4.306379	$1.696499
1982Q2	$0.132477	$0.029934	$0.071887	$0.107725	$0.086021	$0.047358	$1.878375	$4.338333	$1.683412
1982Q3	$0.133101	$0.031218	$0.079055	$0.107725	$0.086021	$0.051141	$1.878375	$4.338333	$1.730260
1982Q4	$0.132033	$0.031725	$0.066791	$0.107725	$0.086021	$0.044949	$1.878375	$4.338333	$1.777108
1983Q1	$0.131312	$0.031218	$0.058498	$0.107725	$0.086021	$0.040763	$1.878375	$4.338333	$1.777108
1983Q2	$0.131839	$0.033321	$0.064038	$0.107725	$0.086021	$0.043361	$1.878375	$4.338333	$1.777108
1983Q3	$0.131950	$0.033765	$0.065207	$0.107719	$0.084753	$0.043909	$1.878375	$4.338333	$1.777108
1983Q4	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.775211
1984Q1	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.774325
1984Q2	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.774325
1984Q3	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.774325
1984Q4	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.774325
1985Q1	$0.131950	$0.033765	$0.065207	$0.107702	$0.080790	$0.043909	$1.878375	$4.338333	$1.774325
1985Q2	$0.134029	$0.034628	$0.062140	$0.110814	$0.084120	$0.045782	$1.857395	$4.241243	$1.708244
1985Q3	$0.138332	$0.036414	$0.055791	$0.117256	$0.091012	$0.049660	$1.813973	$4.040289	$1.700404
1985Q4	$0.138332	$0.036414	$0.055791	$0.117256	$0.091012	$0.049660	$1.813973	$4.040289	$1.700404
1986Q1	$0.138332	$0.036414	$0.055791	$0.117256	$0.091012	$0.049660	$1.813973	$4.040289	$1.700404
1986Q2	$0.140735	$0.051081	$0.073732	$0.117256	$0.091012	$0.062308	$1.813973	$4.040289	$1.700404
1986Q3	$0.144165	$0.062116	$0.081929	$0.117256	$0.091012	$0.072483	$1.813973	$4.040289	$1.700404
1986Q4	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1987Q1	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1987Q2	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1987Q3	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1987Q4	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1988Q1	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.700404
1988Q2	$0.145924	$0.061459	$0.081370	$0.117256	$0.091012	$0.071855	$1.813973	$4.040289	$1.763727
1988Q3	$0.164309	$0.064401	$0.090298	$0.143044	$0.106598	$0.073270	$2.034062	$4.040289	$1.828999
1988Q4	$0.170688	$0.065422	$0.093395	$0.151998	$0.112005	$0.073763	$2.110419	$4.040289	$1.828999
1989Q1	$0.170688	$0.065422	$0.093395	$0.152001	$0.112005	$0.073764	$2.110419	$4.040289	$1.828999
1989Q2	$0.170688	$0.065422	$0.093395	$0.151999	$0.112005	$0.073765	$2.110419	$4.040289	$1.879303
1989Q3	$0.170688	$0.065422	$0.093395	$0.152004	$0.112005	$0.073766	$2.110419	$4.040289	$1.951965
1989Q4	$0.170688	$0.065422	$0.093395	$0.152007	$0.112005	$0.073764	$2.110419	$4.040289	$1.951965
1990Q1	$0.170688	$0.065422	$0.093395	$0.152007	$0.112005	$0.073765	$2.110419	$4.040289	$1.951965
1990Q2	$0.170688	$0.065422	$0.093395	$0.152014	$0.112005	$0.073764	$2.110419	$4.040289	$2.004453
1990Q3	$0.170688	$0.065422	$0.093395	$0.152022	$0.112005	$0.073759	$2.110419	$4.040289	$2.113089
1990Q4	$0.170688	$0.065422	$0.093395	$0.152027	$0.112005	$0.073769	$2.110419	$4.040289	$2.113089

Table 127-12 (continued)
Price Indices for Periodical, Standard, and Parcel Post Mail, 1991Q1 - 2001Q3
(dollars)

TIME	PX2R	PX11	PX12_13	PX3R_NCRU	PX3R_CR	PX3NU	PX25	PX_PR_PP	PX_UPS_R
1991Q1	$0.170688	$0.065422	$0.093395	$0.152040	$0.112005	$0.073769	$2.110419	$4.040289	$2.113089
1991Q2	$0.185739	$0.071459	$0.103845	$0.166915	$0.119719	$0.080503	$2.252168	$4.423533	$2.243552
1991Q3	$0.207480	$0.080179	$0.118938	$0.188636	$0.130863	$0.090340	$2.456916	$4.977107	$2.651248
1991Q4	$0.207480	$0.080179	$0.118938	$0.189096	$0.130863	$0.090426	$2.456916	$4.977107	$2.651248
1992Q1	$0.207480	$0.080179	$0.118938	$0.189286	$0.130863	$0.091766	$2.456916	$4.977107	$2.651248
1992Q2	$0.207480	$0.080179	$0.118938	$0.189611	$0.130863	$0.094634	$2.456916	$4.977107	$2.710801
1992Q3	$0.207480	$0.080179	$0.118938	$0.189491	$0.130762	$0.094633	$2.456916	$4.977107	$3.025579
1992Q4	$0.207480	$0.080179	$0.118938	$0.189871	$0.130752	$0.094636	$2.456916	$4.977107	$3.025579
1993Q1	$0.202332	$0.079839	$0.114886	$0.186639	$0.130752	$0.096873	$2.456916	$4.977107	$3.025579
1993Q2	$0.202293	$0.079836	$0.114855	$0.186635	$0.130752	$0.097496	$2.456916	$4.977107	$3.107132
1993Q3	$0.202293	$0.079836	$0.114855	$0.186688	$0.130752	$0.097490	$2.456916	$4.977107	$3.361987
1993Q4	$0.202293	$0.079836	$0.114855	$0.186705	$0.130752	$0.097464	$2.456916	$4.977107	$3.361987
1994Q1	$0.202294	$0.079903	$0.115817	$0.186338	$0.130752	$0.097974	$2.456916	$4.977107	$3.361987
1994Q2	$0.202300	$0.080111	$0.118823	$0.186526	$0.130752	$0.099231	$2.456916	$4.977107	$3.411610
1994Q3	$0.202300	$0.080111	$0.118823	$0.186410	$0.130752	$0.099201	$2.456916	$4.977107	$3.514319
1994Q4	$0.202300	$0.080111	$0.118823	$0.186485	$0.130752	$0.099224	$2.456916	$4.977107	$3.514319
1995Q1	$0.202300	$0.081163	$0.122477	$0.186378	$0.130752	$0.100958	$2.456916	$4.977107	$3.514319
1995Q2	$0.222715	$0.082223	$0.140121	$0.206281	$0.144494	$0.104175	$2.797233	$5.343291	$3.579486
1995Q3	$0.229798	$0.082514	$0.145976	$0.213113	$0.149261	$0.105150	$2.915302	$5.470334	$3.709820
1995Q4	$0.229798	$0.082514	$0.145976	$0.213200	$0.149261	$0.105169	$2.915302	$5.468361	$3.709820
1996Q1	$0.229798	$0.083339	$0.147336	$0.213100	$0.149261	$0.108525	$2.915302	$5.459485	$3.709820
1996Q2	$0.229798	$0.083513	$0.147623	$0.213200	$0.149261	$0.109256	$2.915302	$5.459485	$3.761095
1996Q3	$0.229798	$0.083513	$0.147623	$0.213160	$0.149261	$0.109289	$2.915302	$5.459485	$3.863646
1996Q4	$0.228873	$0.083513	$0.147623	$0.210304	$0.148444	$0.109329	$2.915302	$5.459485	$3.863646
1997Q1	$0.228442	$0.084458	$0.147099	$0.204337	$0.146694	$0.102267	$2.915302	$5.459485	$3.863646
1997Q2	$0.228442	$0.084787	$0.146918	$0.203732	$0.146694	$0.099936	$2.915302	$5.459485	$3.925187
1997Q3	$0.228442	$0.084787	$0.146918	$0.204353	$0.146694	$0.099899	$2.915302	$5.459485	$4.048271
1997Q4	$0.228442	$0.084787	$0.146918	$0.203797	$0.146694	$0.099773	$2.915302	$5.459485	$4.048271
1998Q1	$0.228442	$0.085528	$0.149130	$0.203663	$0.146694	$0.101682	$2.915302	$5.459485	$4.048271
1998Q2	$0.228442	$0.085785	$0.149898	$0.203268	$0.146694	$0.102360	$2.915302	$5.459485	$4.144236
1998Q3	$0.228442	$0.085785	$0.149898	$0.203972	$0.146694	$0.102345	$2.915302	$5.459485	$4.444125
1998Q4	$0.228442	$0.085785	$0.149898	$0.203841	$0.146694	$0.102300	$2.915302	$5.459485	$4.444125
1999Q1	$0.228442	$0.086601	$0.151433	$0.203500	$0.146694	$0.104188	$2.915302	$5.459485	$4.444125
1999Q2	$0.233357	$0.086221	$0.155891	$0.205627	$0.147949	$0.111162	$3.065827	$5.491721	$4.513102
1999Q3	$0.236979	$0.085733	$0.159175	$0.207809	$0.148873	$0.115946	$3.176740	$5.515473	$4.737835
1999Q4	$0.236979	$0.085733	$0.159175	$0.207940	$0.148873	$0.115687	$3.176740	$5.515473	$4.737835
2000Q1	$0.236979	$0.085733	$0.159175	$0.207992	$0.148873	$0.115452	$3.176740	$5.515473	$4.737835
2000Q2	$0.236979	$0.085733	$0.159175	$0.208258	$0.148873	$0.115189	$3.176740	$5.515473	$4.785035
2000Q3	$0.236979	$0.085733	$0.159175	$0.208057	$0.148873	$0.115085	$3.176740	$5.515473	$4.932535
2000Q4	$0.236979	$0.085733	$0.159175	$0.207876	$0.148873	$0.114810	$3.176740	$5.515473	$4.951452
2001Q1	$0.236979	$0.085733	$0.159175	$0.207100	$0.148873	$0.115918	$3.176740	$5.515473	$4.994191
2001Q2	$0.250550	$0.089123	$0.165294	$0.220785	$0.152668	$0.117969	$3.272777	$6.109002	$5.073308
2001Q3	$0.260550	$0.091620	$0.169803	$0.230443	$0.155465	$0.120246	$3.343541	$6.546338	$5.320549

Table 127-13
Price Indices for Other Mail and Special Services, 1970Q1 - 1980Q4
(dollars)

TIME	PX28	PX29_30	PX35	PX36	PX37	PX38	PX_RR	PX39	PX_DC
1970Q1	$0.324363	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.272715	$0.325457	N/A
1970Q2	$0.324363	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.275586	$0.325457	N/A
1970Q3	$0.324363	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.278448	$0.325457	N/A
1970Q4	$0.324363	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.281487	$0.325457	N/A
1971Q1	$0.337690	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.285367	$0.325457	N/A
1971Q2	$0.344354	$0.166113	$1.982638	$0.449356	$0.305357	$1.158717	$0.287778	$0.325457	N/A
1971Q3	$0.344354	$0.179572	$2.156802	$0.449356	$0.305357	$1.158717	$0.290865	$0.325457	N/A
1971Q4	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.293864	$0.325457	N/A
1972Q1	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.295971	$0.325457	N/A
1972Q2	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.298883	$0.325457	N/A
1972Q3	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.300595	$0.325457	N/A
1972Q4	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.303317	$0.325457	N/A
1973Q1	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.306063	$0.325457	N/A
1973Q2	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.309663	$0.325457	N/A
1973Q3	$0.344354	$0.193445	$2.336325	$0.449356	$0.305357	$1.158717	$0.315369	$0.325457	N/A
1973Q4	$0.344354	$0.201979	$2.336325	$0.449356	$0.305357	$1.158717	$0.321416	$0.325457	N/A
1974Q1	$0.344354	$0.221259	$2.336325	$0.449356	$0.305357	$1.158717	$0.328534	$0.325457	N/A
1974Q2	$0.358640	$0.227162	$2.336325	$0.449356	$0.305357	$1.158717	$0.337665	$0.325457	N/A
1974Q3	$0.387210	$0.238970	$2.336325	$0.449356	$0.305357	$1.158717	$0.346495	$0.325457	N/A
1974Q4	$0.387210	$0.238970	$2.336325	$0.449356	$0.305357	$1.151548	$0.356143	$0.325457	N/A
1975Q1	$0.387210	$0.238970	$2.336325	$0.449356	$0.305357	$1.074595	$0.365464	$0.325457	N/A
1975Q2	$0.387210	$0.238970	$2.336325	$0.449356	$0.305357	$1.074595	$0.371645	$0.325457	N/A
1975Q3	$0.387210	$0.238970	$2.336325	$0.449356	$0.305357	$1.074595	$0.375715	$0.325457	N/A
1975Q4	$0.381817	$0.245648	$2.336325	$0.449356	$0.305357	$1.074595	$0.382853	$0.325457	N/A
1976Q1	$0.368559	$0.266765	$2.336325	$0.449356	$0.305357	$1.074595	$0.389561	$0.325457	N/A
1976Q2	$0.440477	$0.276484	$2.336325	$0.449356	$0.305357	$1.074595	$0.393322	$0.325457	N/A
1976Q3	$0.440477	$0.276484	$2.745116	$0.549569	$0.379599	$1.325101	$0.396328	$0.385467	N/A
1976Q4	$0.444691	$0.307235	$3.378872	$0.827516	$0.561050	$1.513372	$0.402852	$0.616776	N/A
1977Q1	$0.446139	$0.317798	$3.522249	$0.898392	$0.606428	$1.542914	$0.409855	$0.678124	N/A
1977Q2	$0.446139	$0.317798	$3.522249	$0.898392	$0.606428	$1.542914	$0.416624	$0.678124	N/A
1977Q3	$0.446139	$0.317798	$3.522249	$0.898392	$0.606428	$1.542914	$0.423534	$0.678124	N/A
1977Q4	$0.446139	$0.361258	$3.522249	$0.898392	$0.606428	$1.542914	$0.430494	$0.678124	N/A
1978Q1	$0.446139	$0.369134	$3.522249	$0.898392	$0.606428	$1.542914	$0.437068	$0.678124	N/A
1978Q2	$0.446139	$0.369134	$3.522249	$0.898392	$0.606428	$1.542914	$0.443989	$0.678124	N/A
1978Q3	$0.467328	$0.388112	$3.774615	$0.967883	$0.655432	$1.665252	$0.452653	$0.699596	N/A
1978Q4	$0.533546	$0.559638	$4.563256	$1.185039	$0.808571	$2.047558	$0.461684	$0.766694	N/A
1979Q1	$0.533546	$0.581777	$4.563256	$1.185039	$0.808571	$2.047558	$0.470654	$0.766694	N/A
1979Q2	$0.533546	$0.581777	$4.563256	$1.185039	$0.808571	$2.047558	$0.479813	$0.766694	N/A
1979Q3	$0.533546	$0.581777	$4.563256	$1.185039	$0.808571	$2.047558	$0.490527	$0.766694	N/A
1979Q4	$0.533546	$0.690049	$4.563256	$1.185039	$0.808571	$2.047558	$0.503369	$0.766694	N/A
1980Q1	$0.533546	$0.713196	$4.563256	$1.185039	$0.808571	$2.047558	$0.516702	$0.766694	N/A
1980Q2	$0.533546	$0.713196	$4.563256	$1.185039	$0.808571	$2.047558	$0.531444	$0.766694	N/A
1980Q3	$0.533546	$0.713196	$4.563256	$1.185039	$0.808571	$2.047558	$0.544324	$0.766694	N/A
1980Q4	$0.533546	$0.716093	$4.563256	$1.185039	$0.808571	$2.047558	$0.557470	$0.766694	N/A

Table 127-13 (continued)
Price Indices for Other Mail and Special Services, 1981Q1 - 1990Q4
(dollars)

TIME	PX28	PX29_30	PX35	PX36	PX37	PX38	PX_RR	PX39	PX_DC
1981Q1	$0.533546	$0.716787	$4.563256	$1.185039	$0.808571	$2.047558	$0.571208	$0.766694	N/A
1981Q2	$0.533546	$0.716787	$4.563256	$1.185039	$0.808571	$2.047558	$0.584258	$0.766694	N/A
1981Q3	$0.482416	$0.760608	$4.105526	$1.433871	$0.761076	$2.280681	$0.594233	$1.210986	N/A
1981Q4	$0.482026	$0.766006	$4.102031	$1.435770	$0.760713	$2.282461	$0.604990	$1.214378	N/A
1982Q1	$0.515982	$0.766454	$4.102031	$1.435770	$0.760713	$2.282461	$0.615813	$1.214378	N/A
1982Q2	$0.533546	$0.776120	$4.102031	$1.435770	$0.760713	$2.282461	$0.622925	$1.214378	N/A
1982Q3	$0.533546	$0.778243	$4.102031	$1.435770	$0.760713	$2.282461	$0.628099	$1.214378	N/A
1982Q4	$0.533546	$0.779241	$4.102031	$1.435770	$0.760713	$2.282461	$0.638489	$1.214378	N/A
1983Q1	$0.533546	$0.778243	$4.102031	$1.435770	$0.760713	$2.282461	$0.646147	$1.214378	N/A
1983Q2	$0.533546	$0.782164	$4.102031	$1.435770	$0.760713	$2.282461	$0.650798	$1.214378	N/A
1983Q3	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.657310	$1.214378	N/A
1983Q4	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.664782	$1.214378	N/A
1984Q1	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.671179	$1.214378	N/A
1984Q2	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.677111	$1.214378	N/A
1984Q3	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.682906	$1.214378	N/A
1984Q4	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.688147	$1.214378	N/A
1985Q1	$0.533546	$0.782992	$4.102031	$1.435770	$0.760713	$2.282461	$0.693648	$1.214378	N/A
1985Q2	$0.543323	$0.804506	$4.232638	$1.442069	$0.761586	$2.268015	$0.699595	$1.106920	N/A
1985Q3	$0.563560	$0.849035	$4.502962	$1.455108	$0.763392	$2.238117	$0.706133	$0.884506	N/A
1985Q4	$0.563560	$0.849035	$4.502962	$1.455108	$0.763392	$2.238117	$0.711587	$0.884506	N/A
1986Q1	$0.563560	$0.849035	$4.502962	$1.455108	$0.763392	$2.238117	$0.718487	$0.884506	N/A
1986Q2	$0.563560	$0.863557	$4.502962	$1.455108	$0.763392	$2.238117	$0.722938	$0.884506	N/A
1986Q3	$0.563560	$0.872849	$4.502962	$1.455108	$0.763392	$2.238117	$0.722145	$0.884506	N/A
1986Q4	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.727885	$0.884506	N/A
1987Q1	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.733509	$0.884506	N/A
1987Q2	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.741880	$0.884506	N/A
1987Q3	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.749398	$0.884506	N/A
1987Q4	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.757346	$0.884506	N/A
1988Q1	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.765482	$0.884506	N/A
1988Q2	$0.563560	$0.872357	$4.502962	$1.455108	$0.763392	$2.238117	$0.769982	$0.884506	N/A
1988Q3	$0.637824	$1.084648	$5.295506	$1.474396	$0.843600	$2.906345	$0.777195	$0.892482	N/A
1988Q4	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1989Q1	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1989Q2	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1989Q3	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1989Q4	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1990Q1	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1990Q2	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1990Q3	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1990Q4	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A

Table 127-13 (continued)
Price Indices for Other Mail and Special Services, 1991Q1 - 2001Q3
(dollars)

TIME	PX28	PX29_30	PX35	PX36	PX37	PX38	PX_RR	PX39	PX_DC
1991Q1	$0.663589	$1.158299	$5.570470	$1.481088	$0.871427	$3.138180	$0.929709	$0.895249	N/A
1991Q2	$0.706146	$1.227815	$5.586728	$1.529448	$0.934982	$3.246852	$0.973081	$0.839270	N/A
1991Q3	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1991Q4	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1992Q1	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1992Q2	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1992Q3	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1992Q4	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1993Q1	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1993Q2	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1993Q3	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1993Q4	$0.767616	$1.328227	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1994Q1	$0.767616	$1.328507	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1994Q2	$0.767616	$1.329385	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1994Q3	$0.767616	$1.329385	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1994Q4	$0.767616	$1.329385	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1995Q1	$0.767616	$1.329385	$5.610211	$1.599301	$1.026784	$3.403823	$1.035730	$0.758411	N/A
1995Q2	$0.848163	$1.548562	$5.997698	$1.597373	$1.103014	$4.363925	$1.112792	$0.833278	N/A
1995Q3	$0.876108	$1.624602	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1995Q4	$0.876108	$1.624602	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1996Q1	$0.876108	$1.624906	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1996Q2	$0.876108	$1.624970	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1996Q3	$0.876108	$1.624970	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1996Q4	$0.876108	$1.624970	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1997Q1	$0.876108	$1.625243	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1997Q2	$0.876108	$1.625337	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1997Q3	$0.876108	$1.625337	$6.132132	$1.596704	$1.129462	$4.697022	$1.139528	$0.859252	N/A
1997Q4	$0.876108	$1.625337	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1998Q1	$0.876108	$1.626282	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1998Q2	$0.876108	$1.626610	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1998Q3	$0.876108	$1.626610	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1998Q4	$0.876108	$1.626610	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1999Q1	$0.876108	$1.626610	$5.844435	$1.690743	$1.379462	$4.697022	$1.131338	$0.859252	N/A
1999Q2	$0.888534	$1.551349	$6.668001	$1.793596	$1.408250	$4.984900	$1.218721	$0.830537	N/A
1999Q3	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
1999Q4	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2000Q1	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2000Q2	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2000Q3	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2000Q4	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2001Q1	$0.897689	$1.495893	$7.274839	$1.869383	$1.429462	$5.197022	$1.283108	$0.809379	$0.139119
2001Q2	$0.955861	$1.570957	$8.251448	$2.015446	$1.720116	$5.484900	$1.418107	$0.780591	$0.146453
2001Q3	$0.998724	$1.626268	$8.971055	$2.123071	$1.934283	$5.697022	$1.517580	$0.759379	$0.151857

Table 127-14
Economic Data used in Demand Equation Estimation, 1970Q1 - 1980Q4

TIME	N22_PLUS	PC	YD96C	YD96PERM	C96C	STR96C	UCAP	WPIP	WP_NWS	WP_ADVPR	CS96C_INT	I_ADV
1970.1	119.613	0.272715	21.480	21.480	19.122	0.926855	0.846170	1.341886	N/A	N/A	0.000000	0.000000
1970.2	120.083	0.275586	21.523	21.559	19.160	0.920333	0.817520	1.354126	N/A	N/A	0.000000	0.000000
1970.3	120.570	0.278448	21.781	21.654	19.175	0.924421	0.804282	1.344312	N/A	N/A	0.000000	0.000000
1970.4	121.151	0.281487	21.940	21.756	19.242	0.927538	0.787419	1.332114	N/A	N/A	0.000000	0.000000
1971.1	121.752	0.285367	21.810	21.836	19.123	0.915919	0.765368	1.320145	N/A	N/A	0.000000	0.000000
1971.2	122.222	0.287778	22.126	21.939	19.395	0.943206	0.774893	1.314961	N/A	N/A	0.000000	0.000000
1971.3	121.697	0.290865	22.519	22.070	19.645	0.958979	0.776441	1.309765	N/A	N/A	0.000000	0.000000
1971.4	122.622	0.293864	22.478	22.185	19.678	0.967106	0.776042	1.303171	N/A	N/A	0.000000	0.000000
1972.1	123.553	0.295971	22.538	22.295	19.858	0.983023	0.793394	1.295576	N/A	N/A	0.000000	0.000000
1972.2	124.350	0.298883	22.505	22.392	19.974	0.977088	0.815888	1.294425	N/A	N/A	0.000000	0.000000
1972.3	125.175	0.300595	22.560	22.485	20.186	0.995752	0.828465	1.303803	N/A	N/A	0.000000	0.000000
1972.4	125.724	0.303317	22.975	22.609	20.440	1.012059	0.834484	1.302590	N/A	N/A	0.000000	0.000000
1973.1	126.246	0.306063	23.749	22.795	20.833	1.043012	0.860383	1.301473	N/A	N/A	0.000000	0.000000
1973.2	126.708	0.309663	23.936	22.982	21.108	1.072135	0.872466	1.308563	N/A	N/A	0.000000	0.000000
1973.3	127.181	0.315369	24.048	23.163	21.008	1.053519	0.876358	1.325886	N/A	N/A	0.000000	0.000000
1973.4	127.810	0.321416	24.119	23.334	20.977	1.043567	0.881543	1.331356	N/A	N/A	0.000000	0.000000
1974.1	128.446	0.328534	24.270	23.503	20.820	1.026181	0.876318	1.347763	N/A	N/A	0.000000	0.000000
1974.2	129.001	0.337665	23.811	23.613	20.560	1.001306	0.849416	1.373825	N/A	N/A	0.000000	0.000000
1974.3	129.564	0.346495	23.506	23.685	20.545	1.003225	0.847301	1.457761	N/A	N/A	0.000000	0.000000
1974.4	130.196	0.356143	23.447	23.744	20.501	1.000188	0.840746	1.552824	N/A	N/A	0.000000	0.000000
1975.1	130.826	0.365464	23.192	23.773	20.072	0.949392	0.792926	1.581584	N/A	N/A	0.000000	0.000000
1975.2	131.382	0.371645	22.949	23.777	20.161	0.954582	0.722243	1.583051	N/A	N/A	0.000000	0.000000
1975.3	131.939	0.375715	23.909	23.871	20.400	0.969205	0.711400	1.565113	N/A	N/A	0.000000	0.000000
1975.4	132.650	0.382853	23.519	23.920	20.607	0.983885	0.732058	1.539617	N/A	N/A	0.000000	0.000000
1976.1	133.369	0.389561	23.610	23.973	20.760	0.983654	0.750557	1.528002	N/A	N/A	0.000000	0.000000
1976.2	134.001	0.393322	23.890	24.048	21.077	1.000740	0.770135	1.547985	N/A	N/A	0.000000	0.000000
1976.3	134.627	0.396328	23.978	24.124	21.152	1.009052	0.776644	1.564420	N/A	N/A	0.000000	0.000000
1976.4	135.358	0.402852	24.058	24.201	21.275	1.005259	0.784088	1.555384	N/A	N/A	0.000000	0.000000
1977.1	136.090	0.409855	24.146	24.280	21.471	1.008927	0.795591	1.535590	N/A	N/A	0.000000	0.000000
1977.2	136.743	0.416624	24.168	24.353	21.603	1.016700	0.808129	1.523185	N/A	N/A	0.000000	0.000000
1977.3	137.381	0.423534	24.206	24.423	21.616	1.022495	0.826744	1.520765	N/A	N/A	0.000000	0.000000
1977.4	138.136	0.430494	24.424	24.507	21.702	1.015893	0.834042	1.511946	N/A	N/A	0.000000	0.000000
1978.1	138.896	0.437068	24.734	24.613	21.923	1.025238	0.832704	1.490779	N/A	N/A	0.000000	0.000000
1978.2	139.567	0.443989	24.818	24.718	21.908	1.010307	0.828256	1.471587	N/A	N/A	0.000000	0.000000
1978.3	140.228	0.452653	25.043	24.834	22.267	1.043285	0.850390	1.473010	N/A	N/A	0.000000	0.000000
1978.4	141.032	0.461684	25.135	24.948	22.287	1.041590	0.859762	1.474823	N/A	N/A	0.000000	0.000000
1979.1	141.852	0.470654	25.261	25.064	22.336	1.055131	0.867096	1.500548	N/A	N/A	0.000000	0.000000
1979.2	142.569	0.479813	25.384	25.181	22.358	1.050040	0.866480	1.508474	N/A	N/A	0.000000	0.000000
1979.3	143.278	0.490527	25.198	25.269	22.225	1.043203	0.860266	1.521661	N/A	N/A	0.000000	0.000000
1979.4	144.096	0.503369	25.166	25.346	22.284	1.040850	0.849784	1.519334	N/A	N/A	0.000000	0.000000
1980.1	144.924	0.516702	25.241	25.424	22.260	1.033254	0.837949	1.539572	N/A	N/A	0.000000	0.000000
1980.2	145.641	0.531444	25.275	25.497	22.148	1.016877	0.831267	1.557816	N/A	N/A	0.000000	0.000000
1980.3	146.350	0.544324	24.722	25.512	21.549	0.965425	0.793739	1.579132	N/A	N/A	0.000000	0.000000
1980.4	147.074	0.557470	24.710	25.524	21.608	0.971659	0.769405	1.566532	N/A	N/A	0.000000	0.000000

Table 127-14 (continued)
Economic Data used in Demand Equation Estimation, 1981Q1 - 1990Q4

TIME	N22_PLUS	PC	YD96C	YD96PERM	C96C	STR96C	UCAP	WPIP	WP_NWS	WP_ADVPR	CS96C_INT	I_ADV
1981.1	147.784	0.571208	25.058	25.567	21.781	0.979859	0.793000	1.547931	0.417786	N/A	0.000000	0.000000
1981.2	148.397	0.584258	25.032	25.605	21.783	0.987085	0.791753	1.576705	1.370155	N/A	0.000000	0.000000
1981.3	149.010	0.594233	24.801	25.617	21.693	0.969533	0.794049	1.583174	1.359796	N/A	0.000000	0.000000
1981.4	149.755	0.604990	25.150	25.661	21.704	0.965520	0.788880	1.578421	1.401337	N/A	0.000000	0.000000
1982.1	150.529	0.615813	25.096	25.696	21.421	0.934923	0.756790	1.575502	1.416324	N/A	0.000000	0.000000
1982.2	151.185	0.622925	24.927	25.711	21.446	0.924697	0.736689	1.589621	1.522790	N/A	0.000000	0.000000
1982.3	151.844	0.628099	24.987	25.731	21.437	0.923151	0.730071	1.592788	1.566973	0.208490	0.000000	0.000000
1982.4	152.571	0.638489	24.869	25.738	21.431	0.910937	0.715647	1.569190	1.580754	1.567106	0.000000	0.000000
1983.1	153.304	0.646147	24.824	25.740	21.711	0.924931	0.695314	1.554709	1.611530	1.556589	0.000000	0.000000
1983.2	153.925	0.650798	24.871	25.746	21.802	0.920742	0.707932	1.563630	1.760531	1.556642	0.000000	0.000000
1983.3	154.551	0.657310	24.937	25.758	22.104	0.939826	0.728525	1.558081	1.757052	1.548229	0.000000	0.000000
1983.4	155.242	0.664782	25.232	25.797	22.416	0.953925	0.754960	1.555652	1.771875	1.534042	0.000000	0.000000
1984.1	155.943	0.671179	25.694	25.876	22.696	0.972466	0.775929	1.565049	1.773548	1.530692	0.000000	0.000000
1984.2	156.528	0.677111	26.143	25.991	22.866	0.987256	0.792903	1.588523	1.838781	1.549967	0.000000	0.000000
1984.3	157.118	0.682906	26.524	26.131	23.002	0.990327	0.800206	1.605971	1.827486	1.571175	0.000000	0.000000
1984.4	157.767	0.688147	26.922	26.296	23.152	0.986069	0.801860	1.613247	1.828019	1.610159	0.000000	0.000000
1985.1	158.410	0.693648	27.035	26.457	23.343	0.993929	0.794379	1.616060	1.819762	1.580773	0.000000	0.000000
1985.2	158.955	0.699595	27.032	26.603	23.604	0.999295	0.790434	1.619269	1.905812	1.613160	0.000000	0.000000
1985.3	159.506	0.706133	27.317	26.763	23.729	1.009594	0.792761	1.606587	1.940954	1.610785	0.000000	0.000000
1985.4	160.183	0.711587	27.122	26.889	24.005	1.014049	0.786804	1.590760	1.939327	1.601036	0.000000	0.000000
1986.1	160.885	0.718487	27.252	27.016	24.063	1.005587	0.782313	1.577654	1.949699	1.596924	0.000000	0.000000
1986.2	161.475	0.722938	27.448	27.151	24.195	1.008660	0.786119	1.583205	2.003020	1.602670	0.000000	0.000000
1986.3	162.073	0.722145	27.696	27.296	24.325	1.008356	0.784058	1.596978	2.041536	1.609457	0.000000	0.000000
1986.4	162.693	0.727885	27.681	27.427	24.601	1.028793	0.783404	1.598541	2.040158	1.601252	0.000000	0.000000
1987.1	163.280	0.733509	27.584	27.536	24.750	1.033562	0.791706	1.605866	2.031299	1.595657	0.000000	0.000000
1987.2	163.783	0.741880	27.763	27.653	24.733	1.016711	0.797762	1.613966	2.103344	1.587088	0.000000	0.000000
1987.3	164.293	0.749398	27.442	27.728	24.907	1.031756	0.805809	1.613168	2.097684	1.577552	0.000000	0.000000
1987.4	164.838	0.757346	27.868	27.837	25.114	1.044334	0.815628	1.610452	2.078747	1.577431	0.000000	0.000000
1988.1	165.359	0.765482	28.133	27.961	25.105	1.032030	0.826674	1.618169	2.070125	1.572601	0.000000	0.000000
1988.2	165.803	0.769982	28.428	28.102	25.418	1.043362	0.830016	1.644891	2.155695	1.574064	0.000000	0.000000
1988.3	166.251	0.777195	28.578	28.244	25.568	1.050849	0.834155	1.659600	2.156534	1.571662	0.000153	0.000000
1988.4	166.780	0.787469	28.747	28.389	25.706	1.047432	0.838010	1.664420	2.131173	1.573872	0.000206	0.000000
1989.1	167.303	0.796187	28.949	28.540	25.904	1.060030	0.845226	1.670237	2.124187	1.569788	0.000258	0.000000
1989.2	167.749	0.804099	29.182	28.700	25.985	1.059246	0.851414	1.684228	2.193094	1.575144	0.000283	0.000000
1989.3	168.201	0.814016	29.111	28.838	25.970	1.059834	0.846816	1.688351	2.188867	1.574073	0.000322	0.000000
1989.4	168.727	0.820929	29.047	28.957	26.100	1.068635	0.832282	1.683503	2.178478	1.592480	0.000372	0.000000
1990.1	169.241	0.828625	29.092	29.070	26.143	1.059384	0.821902	1.679187	2.174859	1.587914	0.000434	0.000000
1990.2	169.682	0.838185	29.397	29.201	26.303	1.073291	0.821775	1.672662	2.224478	1.577062	0.000490	0.000000
1990.3	170.128	0.847194	29.514	29.332	26.293	1.057829	0.820791	1.663404	2.223221	1.572066	0.000572	0.000000
1990.4	170.667	0.858662	29.485	29.448	26.328	1.051883	0.816541	1.643390	2.197907	1.556981	0.000707	0.000000

Table 12/-14 (continued)
Economic Data used in Demand Equation Estimation, 1991Q1 - 2001Q3

TIME	N22_PLUS	PC	YD96C	YD96PERM	C96C	STR96C	UCAP	WPIP	WP_NWS	WP_ADVPR	CS96C_INT	I_ADV
1991.1	171.203	0.872381	29.189	29.525	26.076	1.038947	0.802057	1.628670	2.177374	1.540734	0.000861	0.000000
1991.2	171.661	0.878692	29.115	29.587	25.799	1.010016	0.780059	1.632120	2.207989	1.531808	0.001042	0.000000
1991.3	172.125	0.883457	29.166	29.650	25.973	1.019293	0.768603	1.621619	2.170194	1.521201	0.001200	0.000000
1991.4	172.718	0.890301	29.218	29.711	25.948	1.013220	0.783252	1.599228	2.147698	1.502842	0.001351	0.000000
1992.1	173.325	0.897986	29.125	29.758	25.812	0.996497	0.786447	1.588569	2.139100	1.491553	0.001484	0.000000
1992.2	173.840	0.905326	29.469	29.833	26.058	1.005279	0.783020	1.588996	2.187767	1.482220	0.001634	0.000000
1992.3	174.364	0.911760	29.607	29.914	26.135	1.003233	0.794098	1.588738	2.189212	1.482847	0.001798	0.000000
1992.4	174.958	0.917252	29.578	29.986	26.239	1.008675	0.795632	1.584351	2.178244	1.474318	0.001953	0.000000
1993.1	175.525	0.924545	29.816	30.073	26.524	1.023549	0.799805	1.578718	2.163845	1.471535	0.002080	0.000000
1993.2	176.016	0.929205	29.726	30.144	26.605	1.029229	0.802973	1.579730	2.244468	1.470035	0.002095	0.000000
1993.3	176.519	0.934822	29.630	30.199	26.597	1.029927	0.804643	1.578656	2.244762	1.474129	0.002208	0.000000
1993.4	177.048	0.938743	29.735	30.259	26.906	1.045967	0.800700	1.567160	2.230348	1.466817	0.002510	0.000000
1994.1	177.530	0.944418	29.857	30.325	27.115	1.062347	0.807060	1.562301	2.196075	1.465365	0.002921	0.000000
1994.2	177.950	0.946864	29.903	30.390	27.257	1.072876	0.811723	1.568284	2.199642	1.463767	0.003481	0.000000
1994.3	178.384	0.951355	30.018	30.459	27.458	1.088011	0.821466	1.572081	2.211583	1.463890	0.004095	0.000000
1994.4	178.869	0.959120	30.263	30.546	27.589	1.093473	0.827315	1.588183	2.197698	1.458759	0.004877	0.000000
1995.1	179.340	0.964816	30.563	30.653	27.803	1.112428	0.831561	1.626352	2.187463	1.460344	0.005810	0.000000
1995.2	179.747	0.969558	30.670	30.760	27.850	1.107285	0.837735	1.684333	2.254930	1.467838	0.006631	0.000000
1995.3	180.168	0.975410	30.539	30.845	27.933	1.103238	0.828768	1.747128	2.278284	1.470370	0.008171	0.000000
1995.4	180.660	0.980308	30.668	30.935	28.213	1.117391	0.822633	1.786110	2.288457	1.480757	0.009627	0.000000
1996.1	181.161	0.984790	30.783	31.027	28.250	1.119164	0.819874	1.779689	2.272567	1.482091	0.011196	0.000000
1996.2	181.589	0.989359	30.884	31.120	28.449	1.127020	0.811853	1.757884	2.392722	1.480359	0.012552	0.085899
1996.3	182.033	0.996189	30.933	31.210	28.646	1.138464	0.812224	1.701842	2.425242	1.477344	0.013948	0.242563
1996.4	182.492	1.000388	31.231	31.320	28.742	1.140740	0.819218	1.670093	2.418205	1.479828	0.015402	0.448043
1997.1	182.915	1.007073	31.294	31.425	28.872	1.150582	0.818592	1.657491	2.406976	1.471804	0.016793	0.503509
1997.2	183.285	1.012967	31.409	31.532	29.110	1.155226	0.822421	1.651726	2.458115	1.456460	0.018391	0.631763
1997.3	183.671	1.016986	31.601	31.647	29.198	1.151191	0.824462	1.635411	2.477910	1.444745	0.019572	0.833646
1997.4	184.080	1.019636	31.833	31.774	29.534	1.162628	0.827430	1.639319	2.475988	1.441314	0.019500	1.533112
1998.1	184.471	1.023798	32.140	31.919	29.769	1.167223	0.830231	1.657995	2.480469	1.437202	0.020551	1.415289
1998.2	184.811	1.024836	32.511	32.085	30.019	1.172895	0.827237	1.677307	2.557053	1.438965	0.021989	1.839683
1998.3	185.165	1.026955	32.886	32.272	30.350	1.187160	0.819603	1.676442	2.587260	1.441235	0.023603	1.783139
1998.4	185.565	1.030739	33.133	32.465	30.691	1.196601	0.808403	1.667060	2.579383	1.439164	0.025872	3.047039
1999.1	185.972	1.034543	33.397	32.665	30.978	1.214871	0.807154	1.652697	2.584717	1.439214	0.028448	2.852121
1999.2	186.324	1.038974	33.491	32.857	31.271	1.235882	0.801694	1.642039	2.644596	1.430555	0.030737	3.434297
1999.3	186.687	1.043755	33.670	33.047	31.683	1.254008	0.802515	1.647623	2.671126	1.421083	0.033995	3.694032
1999.4	187.134	1.048596	33.885	33.241	32.022	1.276736	0.804264	1.662563	2.660496	1.416631	0.036788	7.001131
2000.1	187.622	1.055491	34.068	33.434	32.346	1.293079	0.807512	1.677362	2.665562	1.408406	0.040414	7.306622
2000.2	188.042	1.061363	34.187	33.621	32.889	1.323822	0.811309	1.686904	2.699013	1.403093	0.048029	9.204540
2000.3	188.465	1.070122	34.363	33.807	33.127	1.327112	0.817303	1.710953	2.707301	1.402610	0.059550	9.096268
2000.4	188.915	1.074184	34.532	33.993	33.357	1.329667	0.817639	1.721954	2.709132	1.414154	0.072762	12.553045
2001.1	189.333	1.079731	34.643	34.172	33.625	1.330428	0.810381	1.712255	2.723166	1.413238	0.088855	9.158797
2001.2	189.706	1.086609	34.655	34.336	33.763	1.310367	0.785904	1.703159	2.759854	1.410220	0.102563	9.932681
2001.3	190.080	1.093000	34.809	34.499	33.830	1.276317	0.772385	1.695514	2.793425	1.413605	0.109573	9.496934

Table 127-15
Seasonal Variables, 1971Q1 - 1980Q4
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	SEP1_15	SEP16_30	OCT	NOV_DEC10	DEC11_12	DEC13_15	DEC16_17	DEC18_19	DEC20_21	DEC22_23
1971Q1	0.000000	0.000000	0.185484	0.475806	0.024194	0.032258	0.032258	0.024194	0.016129	0.032258
1971Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1971Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1971Q4	0.127907	0.139535	0.139535	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1972Q1	0.000000	0.000000	0.185484	0.491935	0.008065	0.048387	0.032258	0.008065	0.032258	0.032258
1972Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1972Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1972Q4	0.127907	0.133721	0.122093	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1973Q1	0.000000	0.000000	0.217742	0.467742	0.032258	0.048387	0.008065	0.032258	0.032258	0.024194
1973Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1973Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1973Q4	0.122093	0.127907	0.122093	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1974Q1	0.000000	0.000000	0.233871	0.467742	0.032258	0.040323	0.016129	0.032258	0.032258	0.008065
1974Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1974Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1974Q4	0.116279	0.139535	0.110465	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975Q1	0.000000	0.000000	0.250000	0.467742	0.032258	0.024194	0.032258	0.032258	0.024194	0.016129
1975Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975Q4	0.127907	0.139535	0.098837	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976Q1	0.000000	0.000000	0.266129	0.467742	0.032258	0.024194	0.032258	0.032258	0.008065	0.032258
1976Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976Q4	0.127907	0.139535	0.075581	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1977Q1	0.000000	0.000000	0.272000	0.488000	0.008000	0.048000	0.032000	0.008000	0.032000	0.032000
1977Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1977Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1977Q4	0.127907	0.139535	0.063953	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1978Q1	0.000000	0.000000	0.288000	0.480000	0.016000	0.048000	0.024000	0.016000	0.032000	0.032000
1978Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1978Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1978Q4	0.127907	0.133721	0.058140	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1979Q1	0.000000	0.000000	0.301587	0.460317	0.031746	0.047619	0.007937	0.031746	0.031746	0.023810
1979Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1979Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1979Q4	0.122093	0.127907	0.058140	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1980Q1	0.000000	0.000000	0.317460	0.460317	0.031746	0.039683	0.015873	0.031746	0.031746	0.007937
1980Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1980Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1980Q4	0.127907	0.139535	0.034884	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Table 127-15 (continued)
Seasonal Variables, 1981Q1 - 1990Q4
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	SEP1_15	SEP16_30	OCT	NOV_DEC10	DEC11_12	DEC13_15	DEC16_17	DEC18_19	DEC20_21	DEC22_23
1981Q1	0.000000	0.000000	0.349206	0.460317	0.031746	0.023810	0.031746	0.031746	0.007937	0.031746
1981Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1981Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1981Q4	0.127907	0.139535	0.023256	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982Q1	0.000000	0.000000	0.357143	0.468254	0.023810	0.031746	0.031746	0.023810	0.015873	0.031746
1982Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982Q4	0.127907	0.139535	0.011628	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1983Q1	0.000000	0.000000	0.351563	0.476563	0.007813	0.046875	0.031250	0.007813	0.031250	0.031250
1983Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1983Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1983Q4	0.127907	0.139535	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1984Q1	0.000000	0.000000	0.367188	0.468750	0.015625	0.046875	0.023438	0.015625	0.031250	0.031250
1984Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1984Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1984Q4	0.122093	0.122093	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1985Q1	0.000000	0.007813	0.390625	0.453125	0.031250	0.039063	0.015625	0.031250	0.031250	0.000000
1985Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813
1985Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1985Q4	0.116279	0.122093	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1986Q1	0.000000	0.023438	0.390625	0.453125	0.031250	0.023438	0.031250	0.031250	0.015625	0.000000
1986Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.015625
1986Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1986Q4	0.127907	0.110465	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1987Q1	0.000000	0.039063	0.390625	0.453125	0.031250	0.023438	0.031250	0.031250	0.000000	0.000000
1987Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.031250
1987Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1987Q4	0.127907	0.098837	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1988Q1	0.000000	0.054688	0.382813	0.460938	0.023438	0.031250	0.031250	0.015625	0.000000	0.000000
1988Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.015625	0.031250
1988Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1988Q4	0.127907	0.075581	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1989Q1	0.000000	0.085938	0.367188	0.468750	0.015625	0.046875	0.015625	0.000000	0.000000	0.000000
1989Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.015625	0.031250	0.031250
1989Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1989Q4	0.127907	0.063953	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1990Q1	0.000000	0.093750	0.375000	0.453125	0.031250	0.046875	0.000000	0.000000	0.000000	0.000000
1990Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.031250	0.031250	0.023438
1990Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1990Q4	0.122093	0.058140	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Table 127-15 (continued)
Seasonal Variables, 1991Q1 - 2001Q3
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	SEP1_15	SEP16_30	OCT	NOV_DEC10	DEC11_12	DEC13_15	DEC16_17	DEC18_19	DEC20_21	DEC22_23
1991Q1	0.000000	0.093750	0.390625	0.453125	0.031250	0.031250	0.000000	0.000000	0.000000	0.000000
1991Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.015625	0.031250	0.031250	0.007813
1991Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1991Q4	0.116279	0.058140	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1992Q1	0.000000	0.109375	0.390625	0.453125	0.031250	0.015625	0.000000	0.000000	0.000000	0.000000
1992Q2	0.000000	0.000000	0.000000	0.000000	0.000000	0.007813	0.031250	0.031250	0.023438	0.015625
1992Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1992Q4	0.127907	0.034884	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1993Q1	0.000000	0.140625	0.382813	0.460938	0.015625	0.000000	0.000000	0.000000	0.000000	0.000000
1993Q2	0.000000	0.000000	0.000000	0.000000	0.007813	0.031250	0.031250	0.023438	0.015625	0.031250
1993Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1993Q4	0.129412	0.023529	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1994Q1	0.000000	0.156250	0.367188	0.476563	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1994Q2	0.000000	0.000000	0.000000	0.000000	0.007813	0.046875	0.031250	0.007813	0.031250	0.031250
1994Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1994Q4	0.129412	0.011765	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1995Q1	0.000000	0.171875	0.367188	0.460938	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1995Q2	0.000000	0.000000	0.000000	0.007813	0.015625	0.046875	0.023438	0.015625	0.031250	0.031250
1995Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1995Q4	0.129412	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1996Q1	0.000000	0.179688	0.375000	0.445313	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1996Q2	0.000000	0.000000	0.000000	0.007813	0.031250	0.046875	0.007813	0.031250	0.031250	0.023438
1996Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1996Q4	0.111765	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1997Q1	0.007813	0.187500	0.390625	0.414063	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1997Q2	0.000000	0.000000	0.000000	0.039063	0.031250	0.023438	0.031250	0.031250	0.023438	0.015625
1997Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1997Q4	0.111765	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1998Q1	0.023438	0.187500	0.390625	0.398438	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1998Q2	0.000000	0.000000	0.000000	0.054688	0.031250	0.023438	0.031250	0.031250	0.007813	0.031250
1998Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1998Q4	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1999Q1	0.039063	0.187500	0.382813	0.390625	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1999Q2	0.000000	0.000000	0.000000	0.070313	0.023438	0.031250	0.031250	0.023438	0.015625	0.031250
1999Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1999Q4	0.088235	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2000Q1	0.054688	0.187500	0.367188	0.390625	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2000Q2	0.000000	0.000000	0.000000	0.085938	0.007813	0.046875	0.031250	0.007813	0.031250	0.031250
2000Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2000Q4	0.064706	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2001Q1	0.085938	0.179688	0.375000	0.359375	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2001Q2	0.000000	0.000000	0.000000	0.093750	0.031250	0.046875	0.007813	0.031250	0.031250	0.023438
2001Q3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Table 127-16
Seasonal Variables, 1971Q1 - 1980Q4
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	DEC24	DEC25_JAN1	JAN_FEB	MARCH	APR1_15	APR16_MAY	JUNE	JUL_AUG	BDAYS
1971Q1	0.016129	0.072581	0.088710	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1971Q2	0.000000	0.000000	0.590909	0.378788	0.030303	0.000000	0.000000	0.000000	66.0
1971Q3	0.000000	0.000000	0.000000	0.000000	0.153846	0.530769	0.315385	0.000000	65.0
1971Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.040698	0.552326	86.0
1972Q1	0.016129	0.064516	0.080645	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1972Q2	0.000000	0.000000	0.621212	0.378788	0.000000	0.000000	0.000000	0.000000	66.0
1972Q3	0.000000	0.000000	0.000000	0.000000	0.192308	0.523077	0.284615	0.000000	65.0
1972Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.063953	0.552326	86.0
1973Q1	0.000000	0.072581	0.064516	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1973Q2	0.000000	0.000000	0.636364	0.363636	0.000000	0.000000	0.000000	0.000000	66.0
1973Q3	0.000000	0.000000	0.000000	0.007692	0.184615	0.538462	0.269231	0.000000	65.0
1973Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.069767	0.558140	86.0
1974Q1	0.016129	0.072581	0.048387	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1974Q2	0.000000	0.000000	0.651515	0.348485	0.000000	0.000000	0.000000	0.000000	66.0
1974Q3	0.000000	0.000000	0.000000	0.007692	0.184615	0.553846	0.253846	0.000000	65.0
1974Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.069767	0.563953	86.0
1975Q1	0.016129	0.072581	0.032258	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1975Q2	0.000000	0.000000	0.666667	0.333333	0.000000	0.000000	0.000000	0.000000	66.0
1975Q3	0.000000	0.000000	0.000000	0.023077	0.184615	0.546154	0.246154	0.000000	65.0
1975Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.081395	0.552326	86.0
1976Q1	0.016129	0.072581	0.016129	0.000000	0.000000	0.000000	0.000000	0.000000	62.0
1976Q2	0.000000	0.000000	0.674242	0.325758	0.000000	0.000000	0.000000	0.000000	66.0
1976Q3	0.000000	0.000000	0.000000	0.053846	0.184615	0.530769	0.230769	0.000000	65.0
1976Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.104651	0.552326	86.0
1977Q1	0.016000	0.064000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	62.5
1977Q2	0.000000	0.000000	0.687023	0.312977	0.000000	0.000000	0.000000	0.000000	65.5
1977Q3	0.000000	0.000000	0.000000	0.069231	0.184615	0.530769	0.215385	0.000000	65.0
1977Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.116279	0.552326	86.0
1978Q1	0.008000	0.056000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	62.5
1978Q2	0.000000	0.000000	0.702290	0.297710	0.000000	0.000000	0.000000	0.000000	65.5
1978Q3	0.000000	0.000000	0.000000	0.084615	0.192308	0.523077	0.200000	0.000000	65.0
1978Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.127907	0.552326	86.0
1979Q1	0.000000	0.063492	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	63.0
1979Q2	0.000000	0.007692	0.707692	0.284615	0.000000	0.000000	0.000000	0.000000	65.0
1979Q3	0.000000	0.000000	0.000000	0.092308	0.184615	0.538462	0.184615	0.000000	65.0
1979Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.133721	0.558140	86.0
1980Q1	0.015873	0.047619	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	63.0
1980Q2	0.000000	0.023077	0.723077	0.253846	0.000000	0.000000	0.000000	0.000000	65.0
1980Q3	0.000000	0.000000	0.000000	0.107692	0.184615	0.546154	0.161538	0.000000	65.0
1980Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.145349	0.552326	86.0

Table 127-16 (continued)
Seasonal Variables, 1981Q1 - 1990Q4
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	DEC24	DEC25_JAN1	JAN_FEB	MARCH	APR1_15	APR16_MAY	JUNE	JUL_AUG	BDAYS
1981Q1	0.015873	0.015873	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	63.0
1981Q2	0.000000	0.053846	0.700000	0.246154	0.000000	0.000000	0.000000	0.000000	65.0
1981Q3	0.000000	0.000000	0.000000	0.123077	0.184615	0.530769	0.161538	0.000000	65.0
1981Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.156977	0.552326	86.0
1982Q1	0.015873	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	63.0
1982Q2	0.000000	0.069231	0.684615	0.246154	0.000000	0.000000	0.000000	0.000000	65.0
1982Q3	0.000000	0.000000	0.000000	0.138462	0.184615	0.530769	0.146154	0.000000	65.0
1982Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.168605	0.552326	86.0
1983Q1	0.015625	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1983Q2	0.000000	0.062500	0.703125	0.234375	0.000000	0.000000	0.000000	0.000000	64.0
1983Q3	0.000000	0.000000	0.000000	0.153846	0.184615	0.530769	0.130769	0.000000	65.0
1983Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.180233	0.552326	86.0
1984Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1984Q2	0.007813	0.054688	0.734375	0.203125	0.000000	0.000000	0.000000	0.000000	64.0
1984Q3	0.000000	0.000000	0.000000	0.176923	0.169231	0.553846	0.100000	0.000000	65.0
1984Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.197674	0.558140	86.0
1985Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1985Q2	0.015625	0.070313	0.718750	0.187500	0.000000	0.000000	0.000000	0.000000	64.0
1985Q3	0.000000	0.000000	0.000000	0.176923	0.184615	0.553846	0.084615	0.000000	65.0
1985Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.197674	0.563953	86.0
1986Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1986Q2	0.015625	0.070313	0.718750	0.171875	0.000000	0.000000	0.000000	0.000000	64.0
1986Q3	0.000000	0.000000	0.000000	0.192308	0.184615	0.546154	0.076923	0.000000	65.0
1986Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.209302	0.552326	86.0
1987Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1987Q2	0.015625	0.070313	0.710938	0.164063	0.000000	0.000000	0.000000	0.000000	64.0
1987Q3	0.000000	0.000000	0.000000	0.207692	0.184615	0.530769	0.076923	0.000000	65.0
1987Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.220930	0.552326	86.0
1988Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1988Q2	0.015625	0.070313	0.710938	0.148438	0.000000	0.000000	0.000000	0.000000	64.0
1988Q3	0.000000	0.000000	0.000000	0.238462	0.184615	0.530769	0.046154	0.000000	65.0
1988Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.244186	0.552326	86.0
1989Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1989Q2	0.007813	0.054688	0.718750	0.132813	0.000000	0.000000	0.000000	0.000000	64.0
1989Q3	0.000000	0.000000	0.000000	0.253846	0.192308	0.523077	0.030769	0.000000	65.0
1989Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.255814	0.552326	86.0
1990Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1990Q2	0.000000	0.070313	0.718750	0.117188	0.000000	0.000000	0.000000	0.000000	64.0
1990Q3	0.000000	0.000000	0.000000	0.261538	0.184615	0.538462	0.015385	0.000000	65.0
1990Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.261628	0.558140	86.0

Table 127-16 (continued)
Seasonal Variables, 1991Q1 - 2001Q3
(percentage of Postal Quarter within relevant Gregorian time period)

TIME	DEC24	DEC25_JAN1	JAN_FEB	MARCH	APR1_15	APR16_MAY	JUNE	JUL_AUG	BDAYS
1991Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1991Q2	0.015625	0.070313	0.718750	0.101563	0.000000	0.000000	0.000000	0.000000	64.0
1991Q3	0.000000	0.000000	0.000000	0.261538	0.184615	0.553846	0.000000	0.000000	65.0
1991Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.261628	0.563953	86.0
1992Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1992Q2	0.015625	0.070313	0.726563	0.078125	0.000000	0.000000	0.000000	0.000000	64.0
1992Q3	0.000000	0.000000	0.000000	0.292308	0.184615	0.523077	0.000000	0.000000	65.0
1992Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.005814	0.279070	0.552326	86.0
1993Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1993Q2	0.015625	0.070313	0.695313	0.078125	0.000000	0.000000	0.000000	0.000000	64.0
1993Q3	0.000000	0.000000	0.000000	0.303030	0.181818	0.515152	0.000000	0.000000	66.0
1993Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.005882	0.282353	0.558824	85.0
1994Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1994Q2	0.015625	0.062500	0.703125	0.062500	0.000000	0.000000	0.000000	0.000000	64.0
1994Q3	0.000000	0.000000	0.000000	0.318182	0.181818	0.500000	0.000000	0.000000	66.0
1994Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.017647	0.282353	0.558824	85.0
1995Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1995Q2	0.007813	0.054688	0.718750	0.046875	0.000000	0.000000	0.000000	0.000000	64.0
1995Q3	0.000000	0.000000	0.000000	0.333333	0.189394	0.477273	0.000000	0.000000	66.0
1995Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.029412	0.282353	0.558824	85.0
1996Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1996Q2	0.000000	0.070313	0.734375	0.015625	0.000000	0.000000	0.000000	0.000000	64.0
1996Q3	0.000000	0.000000	0.000000	0.340909	0.181818	0.477273	0.000000	0.000000	66.0
1996Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.052941	0.264706	0.570588	85.0
1997Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1997Q2	0.015625	0.070313	0.718750	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1997Q3	0.000000	0.000000	0.000000	0.356061	0.181818	0.462121	0.000000	0.000000	66.0
1997Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.058824	0.270588	0.558824	85.0
1998Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1998Q2	0.015625	0.070313	0.703125	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1998Q3	0.000000	0.000000	0.007576	0.363636	0.181818	0.446970	0.000000	0.000000	66.0
1998Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.058824	0.282353	0.558824	85.0
1999Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1999Q2	0.015625	0.070313	0.687500	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
1999Q3	0.000000	0.000000	0.007576	0.378788	0.181818	0.431818	0.000000	0.000000	66.0
1999Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.070588	0.282353	0.558824	85.0
2000Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
2000Q2	0.015625	0.062500	0.679688	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
2000Q3	0.000000	0.000000	0.037879	0.378788	0.189394	0.393939	0.000000	0.000000	66.0
2000Q4	0.000000	0.000000	0.000000	0.000000	0.000000	0.094118	0.282353	0.558824	85.0
2001Q1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
2001Q2	0.000000	0.070313	0.664063	0.000000	0.000000	0.000000	0.000000	0.000000	64.0
2001Q3	0.000000	0.000000	0.053030	0.371212	0.181818	0.393939	0.000000	0.000000	66.0

Table 127-17
Miscellaneous Variables, 1971Q1 - 1980Q4

TIME	LT_WS	LT_WSQ	GDIST	MC95	D1_3WS_FIT	MACH_DUM	XOD5_7	D_TREND90	D88Q4	D91Q3	TREND
1971Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	1
1971Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	2
1971Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	3
1971Q4	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	4
1972Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	5
1972Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	6
1972Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	7
1972Q4	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	8
1973Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	9
1973Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	10
1973Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	11
1973Q4	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	12
1974Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	13
1974Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	14
1974Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	15
1974Q4	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	16
1975Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	17
1975Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	18
1975Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	19
1975Q4	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	20
1976Q1	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	21
1976Q2	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	22
1976Q3	N/A	N/A	0	0	N/A	0.00	0.00%	0	0	0	23
1976Q4	0.000000	0.000000	0	0	N/A	0.00	0.00%	0	0	0	24
1977Q1	0.693147	0.480453	0	0	N/A	0.00	0.00%	0	0	0	25
1977Q2	1.098612	1.206949	0	0	N/A	0.00	0.00%	0	0	0	26
1977Q3	1.386294	1.921812	0	0	N/A	0.00	0.00%	0	0	0	27
1977Q4	1.609438	2.590290	0	0	N/A	0.00	0.00%	0	0	0	28
1978Q1	1.791759	3.210402	0	0	N/A	0.00	0.00%	0	0	0	29
1978Q2	1.945910	3.786566	0	0	N/A	0.00	0.00%	0	0	0	30
1978Q3	2.079442	4.324077	0	0	N/A	0.00	0.00%	0	0	0	31
1978Q4	2.197225	4.827796	0	0	N/A	0.00	0.00%	0	0	0	32
1979Q1	2.302585	5.301898	0	0	N/A	0.00	0.00%	0	0	0	33
1979Q2	2.397895	5.749902	0	0	N/A	0.00	0.00%	0	0	0	34
1979Q3	2.484907	6.174761	0	0	N/A	0.00	0.00%	0	0	0	35
1979Q4	2.564949	6.578965	0	0	N/A	0.25	0.00%	0	0	0	36
1980Q1	2.639057	6.964624	0	0	N/A	0.50	0.00%	0	0	0	37
1980Q2	2.708050	7.333536	0	0	N/A	0.75	0.00%	0	0	0	38
1980Q3	2.772589	7.687248	0	0	N/A	1.00	0.00%	0	0	0	39
1980Q4	2.833213	8.027098	0	0	N/A	1.00	0.00%	0	0	0	40

Table 127-17 (continued)
Miscellaneous Variables, 1981Q1 - 1990Q4

TIME	LT_WS	LT_WSQ	GDIST	MC95	D1_3WS_FIT	MACH_DUM	XOD5_7	D_TREND90	D88Q4	D91Q3	TREND
1981Q1	2.890372	8.354249	0	0	N/A	1.00	0.00%	0	0	0	41
1981Q2	2.944439	8.669721	0	0	N/A	1.00	0.00%	0	0	0	42
1981Q3	2.995732	8.974412	0	0	N/A	1.00	0.00%	0	0	0	43
1981Q4	3.044522	9.269117	0	0	N/A	0.75	0.00%	0	0	0	44
1982Q1	3.091042	9.554543	0	0	-13.121821	0.50	0.00%	0	0	0	45
1982Q2	3.135494	9.831324	0	0	-12.922202	0.25	0.00%	0	0	0	46
1982Q3	3.178054	10.100026	0	0	-12.712233	0.00	0.00%	0	0	0	47
1982Q4	3.218876	10.361162	0	0	-12.538428	0.00	0.00%	0	0	0	48
1983Q1	3.258097	10.615193	0	0	-12.348893	0.00	0.00%	0	0	0	49
1983Q2	3.295837	10.862541	0	0	-12.143579	0.00	0.00%	0	0	0	50
1983Q3	3.332205	11.103587	0	0	-11.952237	0.00	0.00%	0	0	0	51
1983Q4	3.367296	11.338681	0	0	-11.768827	0.00	0.00%	0	0	0	52
1984Q1	3.401197	11.568144	0	0	-9.969103	0.00	0.00%	0	0	0	53
1984Q2	3.433987	11.792268	0	0	-9.779311	0.00	0.00%	0	0	0	54
1984Q3	3.465736	12.011325	0	0	-9.621389	0.00	0.00%	0	0	0	55
1984Q4	3.496508	12.225565	0	0	-9.463252	0.00	0.00%	0	0	0	56
1985Q1	3.526361	12.435219	0	0	-9.308609	0.00	0.00%	0	0	0	57
1985Q2	3.555348	12.640500	0	0	-8.890011	0.00	0.00%	0	0	0	58
1985Q3	3.583519	12.841608	0	0	-8.270293	0.00	0.00%	0	0	0	59
1985Q4	3.610918	13.038728	0	0	-8.136077	0.00	0.00%	0	0	0	60
1986Q1	3.637586	13.232033	0	0	-8.009455	0.00	0.00%	0	0	0	61
1986Q2	3.663562	13.421684	0	0	-7.875173	0.00	0.00%	0	0	0	62
1986Q3	3.688879	13.607832	0	0	-7.723508	0.00	0.00%	0	0	0	63
1986Q4	3.713572	13.790617	0	0	-7.598593	0.00	0.00%	0	0	0	64
1987Q1	3.737670	13.970174	0	0	-7.475072	0.00	0.00%	0	0	0	65
1987Q2	3.761200	14.146626	0	0	-7.362796	0.00	0.00%	0	0	0	66
1987Q3	3.784190	14.320091	0	0	-7.248938	0.00	0.00%	0	0	0	67
1987Q4	3.806662	14.490679	0	0	-7.137898	0.00	0.00%	0	0	0	68
1988Q1	3.828641	14.658495	1	0	-7.028793	0.00	0.00%	0	0	0	69
1988Q2	3.850148	14.823637	1	0	-6.909887	0.00	0.00%	0	0	0	70
1988Q3	3.871201	14.986197	1	0	-6.719403	0.00	74.24%	0	0	0	71
1988Q4	3.891820	15.146265	1	0	-6.595205	0.00	100.00%	1	1	0	72
1989Q1	3.912023	15.303924	1	0	-6.495186	0.00	100.00%	2	0	0	73
1989Q2	3.931826	15.459253	1	0	-6.394140	0.00	100.00%	3	0	0	74
1989Q3	3.951244	15.612327	1	0	-6.299676	0.00	100.00%	4	0	0	75
1989Q4	3.970292	15.763218	1	0	-6.198502	0.00	100.00%	5	0	0	76
1990Q1	3.988984	15.911994	1	0	-6.100710	0.00	100.00%	6	0	0	77
1990Q2	4.007333	16.058719	1	0	-6.008730	0.00	100.00%	7	0	0	78
1990Q3	4.025352	16.203456	1	0	-5.916502	0.00	100.00%	8	0	0	79
1990Q4	4.043051	16.346264	1	0	-5.830980	0.00	100.00%	9	0	0	80

Table 127-17 (continued)
Miscellaneous Variables, 1991Q1 - 2001Q3

TIME	LT_WS	LT_WSQ	GDIST	MC95	D1_3WS_FIT	MACH_DUM	XOD5_7	D_TREND90	D88Q4	D91Q3	TREND
1991Q1	4.060443	16.487197	1	0	-5.751180	0.00	100.00%	9	0	0	81
1991Q2	4.077537	16.626312	1	0	-5.571532	0.00	67.27%	9	0	0	82
1991Q3	4.094345	16.763657	1	0	-5.362670	0.00	19.98%	9	0	1	83
1991Q4	4.110874	16.899284	1	0	-5.275339	0.00	19.98%	9	0	0	84
1992Q1	4.127134	17.033238	1	0	-5.190949	0.00	19.98%	9	0	0	85
1992Q2	4.143135	17.165565	1	0	-5.107078	0.00	19.98%	9	0	0	86
1992Q3	4.158883	17.296309	1	0	-5.022716	0.00	19.98%	9	0	0	87
1992Q4	4.174387	17.425509	1	0	-4.937920	0.00	19.98%	9	0	0	88
1993Q1	4.189655	17.553207	1	0	-5.262894	0.00	19.98%	9	0	0	89
1993Q2	4.204693	17.679440	1	0	-5.172278	0.00	19.98%	9	0	0	90
1993Q3	4.219508	17.804245	1	0	-5.084928	0.00	19.98%	9	0	0	91
1993Q4	4.234107	17.927658	1	0	-4.995941	0.00	19.98%	9	0	0	92
1994Q1	4.248495	18.049712	1	0	-4.911535	0.00	19.98%	9	0	0	93
1994Q2	4.262680	18.170440	1	0	-4.822974	0.00	19.98%	9	0	0	94
1994Q3	4.276666	18.289873	1	0	-4.739408	0.00	19.98%	9	0	0	95
1994Q4	4.290459	18.408042	1	0	-4.662567	0.00	19.98%	9	0	0	96
1995Q1	4.304065	18.524976	1	0	-4.583567	0.00	19.98%	9	0	0	97
1995Q2	4.317488	18.640704	1	0	-4.402395	0.00	54.70%	9	0	0	98
1995Q3	4.330733	18.755251	1	0	-4.294934	0.00	66.75%	9	0	0	99
1995Q4	4.343805	18.868646	1	0	-4.221056	0.00	66.75%	9	0	0	100
1996Q1	4.356709	18.980912	1	0	-4.147804	0.00	66.75%	9	0	0	101
1996Q2	4.369448	19.092075	1	0	-4.075908	0.00	66.75%	9	0	0	102
1996Q3	4.382027	19.202157	1	0	-4.008313	0.00	66.75%	9	0	0	103
1996Q4	4.394449	19.311183	1	0.681818	-4.177358	0.00	69.08%	9	0	0	104
1997Q1	4.406719	19.419175	1	1	-4.045111	0.00	74.08%	9	0	0	105
1997Q2	4.418841	19.526152	1	1	-3.977260	0.00	74.08%	9	0	0	106
1997Q3	4.430817	19.632138	1	1	-3.907838	0.00	74.08%	9	0	0	107
1997Q4	4.442651	19.737150	1	1	-3.837709	0.00	74.08%	9	0	0	108
1998Q1	4.454347	19.841210	1	1	-3.770867	0.00	74.08%	9	0	0	109
1998Q2	4.465908	19.944335	1	1	-3.701033	0.00	74.08%	9	0	0	110
1998Q3	4.477337	20.046545	1	1	-3.633893	0.00	74.08%	9	0	0	111
1998Q4	4.488636	20.147856	1	1	-3.570070	0.00	74.08%	9	0	0	112
1999Q1	4.499810	20.248287	1	1	-3.507369	0.00	74.08%	9	0	0	113
1999Q2	4.510860	20.347853	1	1	-3.413715	0.00	74.08%	9	0	0	114
1999Q3	4.521789	20.446572	1	1	-3.331729	0.00	74.08%	9	0	0	115
1999Q4	4.532599	20.544458	1	1	-3.274408	0.00	74.08%	9	0	0	116
2000Q1	4.543295	20.641527	1	1	-3.220348	0.00	74.08%	9	0	0	117
2000Q2	4.553877	20.737795	1	1	-3.165991	0.00	74.08%	9	0	0	118
2000Q3	4.564348	20.833274	1	1	-3.115588	0.00	74.08%	9	0	0	119
2000Q4	4.574711	20.927981	1	1	-3.060999	0.00	74.08%	9	0	0	120
2001Q1	4.584967	21.021927	1	1	-3.008856	0.00	74.08%	9	0	0	121
2001Q2	4.595120	21.115126	1	1	-2.943041	0.00	82.34%	9	0	0	122
2001Q3	4.605170	21.207592	1	1	-2.882362	0.00	88.43%	9	0	0	123

Table 127-18
Miscellaneous Variables, 1971Q1 - 1980Q4

TIME	D_R97	DVOL4	D_EL1	D_EL3	RULE94	NEWRPT	D87	PANELCHG	MSADJ	D97Q4	D98Q1_2
1971Q1	0	0	1	0	0	0	0	0	0	0	0
1971Q2	0	0	0	0	0	0	0	0	0	0	0
1971Q3	0	0	0	0	0	0	0	0	0	0	0
1971Q4	0	0	0	0	0	0	0	0	0	0	0
1972Q1	0	0	0	0	0	0	0	0	0	0	0
1972Q2	0	0	0	0	0	0	0	0	0	0	0
1972Q3	0	0	0	1	0	0	0	0	0	0	0
1972Q4	0	0	0	0	0	0	0	0	0	0	0
1973Q1	0	0	1	0	0	0	0	0	0	0	0
1973Q2	0	0	0	0	0	0	0	0	0	0	0
1973Q3	0	0	0	0	0	0	0	0	0	0	0
1973Q4	0	0	0	0	0	0	0	0	0	0	0
1974Q1	0	0	0	0	0	0	0	0	0	0	0
1974Q2	0	0	0	0	0	0	0	0	0	0	0
1974Q3	0	0	0	1	0	0	0	0	0	0	0
1974Q4	0	0	0	0	0	0	0	0	0	0	0
1975Q1	0	0	1	0	0	0	0	0	0	0	0
1975Q2	0	0	0	0	0	0	0	0	0	0	0
1975Q3	0	0	0	0	0	0	0	0	0	0	0
1975Q4	0	0	0	0	0	0	0	0	0	0	0
1976Q1	0	0	0	0	0	0	0	0	0	0	0
1976Q2	0	0	0	0	0	0	0	0	0	0	0
1976Q3	0	0	0	1	0	0	0	0	0	0	0
1976Q4	0	0	0	0	0	0	0	0	0	0	0
1977Q1	0	0	1	0	0	0	0	0	0	0	0
1977Q2	0	0	0	0	0	0	0	0	0	0	0
1977Q3	0	0	0	0	0	0	0	0	0	0	0
1977Q4	0	0	0	0	0	0	0	0	0	0	0
1978Q1	0	0	0	0	0	0	0	0	0	0	0
1978Q2	0	0	0	0	0	0	0	0	0	0	0
1978Q3	0	0	0	1	0	0	0	0	0	0	0
1978Q4	0	0	0	0	0	0	0	0	0	0	0
1979Q1	0	0	1	0	0	0	0	0	0	0	0
1979Q2	0	0	0	0	0	0	0	0	0	0	0
1979Q3	0	0	0	0	0	0	0	0	0	0	0
1979Q4	0	0	0	0	0	0	0	0	0	0	0
1980Q1	0	0	0	0	0	0	0	0	0	0	0
1980Q2	0	0	0	0	0	0	0	0	0	0	0
1980Q3	0	0	0	1	0	0	0	0	0	0	0
1980Q4	0	0	0	0	0	0	0	0	0	0	0

Table 127-18 (continued)
Miscellaneous Variables, 1981Q1 - 1990Q4

TIME	D_R97	DVOL4	D_EL1	D_EL3	RULE94	NEWRPT	D87	PANELCHG	MSADJ	D97Q4	D98Q1_2
1981Q1	0	0	1	0	0	0	0	0	0	0	0
1981Q2	0	0	0	0	0	0	0	0	0	0	0
1981Q3	0	0	0	0	0	0	0	0	0	0	0
1981Q4	0	0	0	0	0	0	0	0	0	0	0
1982Q1	0	0	0	0	0	0	0	0	0	0	0
1982Q2	0	0	0	0	0	0	0	0	0	0	0
1982Q3	0	0	0	1	0	0	0	0	0	0	0
1982Q4	0	0	0	0	0	0	0	0	0	0	0
1983Q1	0	0	1	0	0	0	0	0	0	0	0
1983Q2	0	0	0	0	0	0	0	0	0	0	0
1983Q3	0	0	0	0	0	0	0	0	0	0	0
1983Q4	0	0	0	0	0	0	0	0	0	0	0
1984Q1	0	0	0	0	0	0	0	0	0	0	0
1984Q2	0	0	0	0	0	0	0	0	0	0	0
1984Q3	0	0	0	1	0	0	0	0	0	0	0
1984Q4	0	0	0	0	0	0	0	0	0	0	0
1985Q1	0	0	1	0	0	1	0	0	0	0	0
1985Q2	0	0	0	0	0	1	0	0	0	0	0
1985Q3	0	0	0	0	0	1	0	0	0	0	0
1985Q4	0	0	0	0	0	1	0	0	0	0	0
1986Q1	0	0	0	0	0	1	0	0	0	0	0
1986Q2	0	0	0	0	0	1	0	0	0	0	0
1986Q3	0	0	0	1	0	1	0	0	0	0	0
1986Q4	0	0	0	0	0	1	0	0	0	0	0
1987Q1	0	0	1	0	0	1	1	0	0	0	0
1987Q2	0	0	0	0	0	1	1	0	0	0	0
1987Q3	0	0	0	0	0	1	1	0	0	0	0
1987Q4	0	0	0	0	0	1	1	0	0	0	0
1988Q1	0	0	0	0	0	1	1	0	0	0	0
1988Q2	0	0	0	0	0	1	1	0	0	0	0
1988Q3	0	0	0	1	0	1	1	0	0	0	0
1988Q4	0	0	0	0	0	1	1	0	0	0	0
1989Q1	0	0	1	0	0	1	1	0	0	0	0
1989Q2	0	0	0	0	0	1	1	0	0	0	0
1989Q3	0	0	0	0	0	1	1	0	0	0	0
1989Q4	0	0	0	0	0	1	1	0	0	0	0
1990Q1	0	0	0	0	0	1	1	0	0	0	0
1990Q2	0	0	0	0	0	1	1	0	0	0	0
1990Q3	0	0	0	1	0	1	1	0	0	0	0
1990Q4	0	0	0	0	0	1	1	0	0	0	0

Table 127-18 (continued)
Miscellaneous Variables, 1991Q1 - 2001Q3

TIME	D_R97	DVOL4	D_EL1	D_EL3	RULE94	NEWRPT	D87	PANELCHG	MSADJ	D97Q4	D98Q1_2
1991Q1	0	0	1	0	0	1	1	0	0	0	0
1991Q2	0	0	0	0	0	1	1	0	0	0	0
1991Q3	0	0	0	0	0	1	1	0	0	0	0
1991Q4	0	0	0	0	0	1	1	0	0	0	0
1992Q1	0	0	0	0	0	1	1	0	0	0	0
1992Q2	0	0	0	0	0	1	1	0	0	0	0
1992Q3	0	0	0	1	0	1	1	0	0	0	0
1992Q4	0	0	0	0	0	1	1	0	0	0	0
1993Q1	0	0	1	0	0	1	1	0	1	0	0
1993Q2	0	0	0	0	0	1	1	1	1	0	0
1993Q3	0	0	0	0	0	1	1	1	1	0	0
1993Q4	0	0	0	0	0	1	1	1	1	0	0
1994Q1	0	0	0	0	1	1	1	1	1	0	0
1994Q2	0	0	0	0	1	1	1	1	1	0	0
1994Q3	0	0	0	1	1	1	1	1	1	0	0
1994Q4	0	0	0	0	1	1	1	1	1	0	0
1995Q1	0	0	1	0	1	1	1	1	1	0	0
1995Q2	0	0	0	0	1	1	1	1	1	0	0
1995Q3	0	0	0	0	1	1	1	1	1	0	0
1995Q4	0	0	0	0	1	1	1	1	1	0	0
1996Q1	0	0	0	0	1	1	1	1	1	0	0
1996Q2	0	0	0	0	1	1	1	1	1	0	0
1996Q3	0	0	0	1	1	1	1	1	1	0	0
1996Q4	0	0	0	0	1	1	1	1	1	0	0
1997Q1	0	0	1	0	1	1	1	1	1	0	0
1997Q2	0	0	0	0	1	1	1	1	1	0	0
1997Q3	0	0	0	0	1	1	1	1	1	0	0
1997Q4	0	0	0	0	1	1	1	1	1	1	0
1998Q1	0	0	0	0	1	1	1	1	1	0	1
1998Q2	0	0	0	0	1	1	1	1	1	0	1
1998Q3	0	0	0	1	1	1	1	1	1	0	0
1998Q4	0	0	0	0	1	1	1	1	1	0	0
1999Q1	0	0	1	0	1	1	1	1	1	0	0
1999Q2	0.575758	0	0	0	1	1	1	1	1	0	0
1999Q3	1	0	0	0	1	1	1	1	1	0	0
1999Q4	1	0	0	0	1	1	1	1	1	0	0
2000Q1	1	0	0	0	1	1	1	1	1	0	0
2000Q2	1	0	0	0	1	1	1	1	1	0	0
2000Q3	1	0	0	1	1	1	1	1	1	0	0
2000Q4	1	1	0	0	1	1	1	1	1	0	0
2001Q1	1	1	1	0	1	1	1	1	1	0	0
2001Q2	1	1	0	0	1	1	1	1	1	0	0
2001Q3	1	1	0	0	1	1	1	1	1	0	0

Table 127-19
Miscellaneous Variables, 1971Q1 - 1980Q4

TIME	D_DC	SEARS	D98Q1	DVOL29	T97	BGVOL1_3	TMC96_3	MC96_3	D_MEPS	BGVOL8
1971Q1	0	0	0	0	0	0.570388	0	0	0	-5.092705
1971Q2	0	0	0	0	0	0.317955	0	0	0	-5.136026
1971Q3	0	0	0	0	0	0.309600	0	0	0	-5.101473
1971Q4	0	0	0	0	0	0.235867	0	0	0	-5.152747
1972Q1	0	0	0	0	0	0.511474	0	0	0	-5.076302
1972Q2	0	0	0	0	0	0.279007	0	0	0	-5.118124
1972Q3	0	0	0	0	0	0.274771	0	0	0	-5.120022
1972Q4	0	0	0	0	0	0.259889	0	0	0	-5.200241
1973Q1	0	0	0	0	0	0.527252	0	0	0	-5.078741
1973Q2	0	0	0	0	0	0.319399	0	0	0	-5.119460
1973Q3	0	0	0	0	0	0.296863	0	0	0	-5.085746
1973Q4	0	0	0	0	0	0.264974	0	0	0	-5.126525
1974Q1	0	0	0	0	0	0.502263	0	0	0	-5.062192
1974Q2	0	0	0	0	0	0.352022	0	0	0	-5.035656
1974Q3	0	0	0	0	0	0.271153	0	0	0	-5.130528
1974Q4	0	0	0	0	0	0.256937	0	0	0	-5.172363
1975Q1	0	0	0	0	0	0.467902	0	0	0	-5.114012
1975Q2	0	0	0	0	0	0.312286	0	0	0	-5.158020
1975Q3	0	0	0	0	0	0.244208	0	0	0	-5.238994
1975Q4	0	0	0	0	0	0.228463	0	0	0	-5.254337
1976Q1	0	0	0	0	0	0.422495	0	0	0	-5.260009
1976Q2	0	0	0	0	0	0.291279	0	0	0	-5.298051
1976Q3	0	0	0	0	0	0.236337	0	0	0	-5.322274
1976Q4	0	0	0	0	0	0.226857	0	0	0	-5.394075
1977Q1	0	0	0	0	0	0.412235	0	0	0	-5.077757
1977Q2	0	0	0	0	0	0.304654	0	0	0	-5.317484
1977Q3	0	0	0	0	0	0.252797	0	0	0	-5.268355
1977Q4	0	0	0	0	0	0.223314	0	0	0	-5.315337
1978Q1	0	0	0	0	0	0.434403	0	0	0	-5.134106
1978Q2	0	0	0	0	0	0.316862	0	0	0	-5.332913
1978Q3	0	0	0	0	0	0.310870	0	0	0	-5.210182
1978Q4	0	0	0	0	0	0.223319	0	0	0	-5.175277
1979Q1	0	0	0	0	0	0.420214	0	0	0	-5.089856
1979Q2	0	0	0	0	0	0.339980	0	0	0	-5.255521
1979Q3	0	0	0	0	0	0.297935	0	0	0	-5.135117
1979Q4	0	0	0	0	0	0.286442	0	0	0	-5.153677
1980Q1	0	0	0	0	0	0.435949	0	0	0	-5.075414
1980Q2	0	0	0	0	0	0.360801	0	0	0	-5.104897
1980Q3	0	0	0	0	0	0.310811	0	0	0	-5.052713
1980Q4	0	0	0	0	0	0.282133	0	0	0	-5.186953

Table 127-19 (continued)
Miscellaneous Variables, 1981Q1 - 1990Q4

TIME	D_DC	SEARS	D98Q1	DVOL29	T97	BGVOL1_3	TMC96_3	MC96_3	D_MEPS	BGVOL8
1981Q1	0	0	0	0	0	0.437342	0	0	0	-4.981049
1981Q2	0	0	0	0	0	0.362684	0	0	0	-5.020752
1981Q3	0	0	0	0	0	0.320915	0	0	0	-5.032395
1981Q4	0	0	0	0	0	0.277676	0	0	0	-5.110558
1982Q1	0	0	0	0	0	0.415661	0	0	0	-5.027918
1982Q2	0	0	0	0	0	0.361537	0	0	0	-5.129696
1982Q3	0	0	0	0	0	0.327881	0	0	0	-5.048711
1982Q4	0	0	0	0	0	0.275965	0	0	0	-5.183453
1983Q1	0	0	0	0	0	0.410959	0	0	0	-4.976784
1983Q2	0	0	0	0	0	0.388548	0	0	0	-5.115121
1983Q3	0	0	0	0	0	0.342735	0	0	0	-5.065939
1983Q4	0	0	0	0	0	0.283617	0	0	0	-5.112047
1984Q1	0	0	0	0	0	0.459939	0	0	0	-4.980078
1984Q2	0	0	0	0	0	0.434128	0	0	0	-5.057869
1984Q3	0	0	0	0	0	0.380685	0	0	0	-4.965738
1984Q4	0	0	0	0	0	0.350608	0	0	0	-5.019185
1985Q1	0	0	0	0	0	0.512825	0	0	0	-4.964128
1985Q2	0	0	0	0	0	0.477936	0	0	0	-5.071153
1985Q3	0	0	0	0	0	0.421177	0	0	0	-4.889734
1985Q4	0	0	0	0	0	0.376647	0	0	0	-4.988966
1986Q1	0	0	0	0	0	0.554182	0	0	0	-4.851529
1986Q2	0	0	0	0	0	0.480842	0	0	0	-4.932706
1986Q3	0	0	0	0	0	0.459176	0	0	0	-4.940013
1986Q4	0	0	0	0	0	0.423652	0	0	0	-4.953418
1987Q1	0	0	0	0	0	0.570743	0	0	0	-4.799086
1987Q2	0	0	0	0	0	0.523623	0	0	0	-4.909526
1987Q3	0	0	0	0	0	0.482998	0	0	0	-4.911105
1987Q4	0	0	0	0	0	0.430747	0	0	0	-4.864427
1988Q1	0	0	0	0	0	0.619053	0	0	0	-4.629074
1988Q2	0	0	0	0	0	0.577944	0	0	0	-4.762259
1988Q3	0	0	0	0	0	0.529482	0	0	0	-4.642534
1988Q4	0	0	0	0	0	0.468326	0	0	0	-4.665976
1989Q1	0	0	0	0	0	0.618798	0	0	0	-4.606196
1989Q2	0	0	0	0	0	0.593281	0	0	0	-4.612841
1989Q3	0	0	0	0	0	0.534897	0	0	0	-4.555677
1989Q4	0	0	0	0	0	0.483219	0	0	0	-4.635402
1990Q1	0	0	0	0	0	0.618322	0	0	0	-4.481665
1990Q2	0	0	0	0	0	0.622441	0	0	0	-4.516311
1990Q3	0	0	0	0	0	0.551484	0	0	0	-4.487004
1990Q4	0	0	0	0	0	0.522892	0	0	0	-4.573839

Table 127-19 (continued)
Miscellaneous Variables, 1991Q1 - 2001Q3

TIME	D_DC	SEARS	D98Q1	DVOL29	T97	BGVOL1_3	TMC96_3	MC96_3	D_MEPS	BGVOL8
1991Q1	0	0	0	0	0	0.639800	0	0	0	-4.420105
1991Q2	0	0	0	0	0	0.635243	0	0	0	-4.481683
1991Q3	0	0	0	0	0	0.528295	0	0	0	-4.533820
1991Q4	0	0	0	0	0	0.497547	0	0	0	-4.577102
1992Q1	0	0	0	0	0	0.605621	0	0	0	-4.429805
1992Q2	0	0	0	0	0	0.605827	0	0	0	-4.416981
1992Q3	0	0	0	0	0	0.541036	0	0	0	-4.384515
1992Q4	0	0	0	0	0	0.521324	0	0	0	-4.478107
1993Q1	0	0	0	0	0	0.597353	0	0	0	-4.286205
1993Q2	0	1	0	0	0	0.627506	0	0	0	-4.329876
1993Q3	0	1	0	0	0	0.544876	0	0	0	-4.184442
1993Q4	0	1	0	0	0	0.537873	0	0	0	-4.352499
1994Q1	0	1	0	0	0	0.609435	0	0	0	-4.156054
1994Q2	0	0	0	0	0	0.642522	0	0	0	-4.202281
1994Q3	0	0	0	0	0	0.550082	0	0	0	-4.063780
1994Q4	0	0	0	0	0	0.553481	0	0	0	-4.196733
1995Q1	0	0	0	0	0	0.623335	0	0	0	-4.057716
1995Q2	0	0	0	0	0	0.653751	0	0	1	-4.024496
1995Q3	0	0	0	0	0	0.567421	0	0	1	-4.051426
1995Q4	0	0	0	0	0	0.542447	0	0	1	-4.153947
1996Q1	0	0	0	0	0	0.630774	0	0	1	-4.000748
1996Q2	0	0	0	0	0	0.655441	0	0	1	-3.996855
1996Q3	0	0	0	0	0	0.561817	0	0	1	-3.988518
1996Q4	0	0	0	0	0	0.539512	0	0	1	-3.986766
1997Q1	0	0	0	0	1	0.607902	0	0	1	-3.890900
1997Q2	0	0	0	0	2	0.666911	0	0	1	-3.863641
1997Q3	0	0	0	0	3	0.582132	0	0	1	-3.903068
1997Q4	0	0	0	0	4	0.549352	1	0.825758	1	-3.842207
1998Q1	0	0	1	0	5	0.613058	2	1	1	-3.761088
1998Q2	0	0	1	0	6	0.662473	3	1	1	-3.728547
1998Q3	0	0	1	0	7	0.584823	4	1	1	-3.791360
1998Q4	0	0	1	0	8	0.562718	5	1	1	-3.856579
1999Q1	0	0	1	0	9	0.618741	6	1	1	-3.720391
1999Q2	0	0	1	0	10	0.678673	7	1	1	-3.692393
1999Q3	0.5	0	1	0	11	0.603836	8	1	1	-3.798506
1999Q4	1	0	1	0	12	0.563906	9	1	1	-3.886462
2000Q1	1	0	1	0	13	0.627076	10	1	1	-3.745805
2000Q2	1	0	1	0	14	0.689770	11	1	1	-3.633173
2000Q3	1	0	1	0	15	0.603600	12	1	1	-3.795592
2000Q4	1	0	1	0	16	0.564436	13	1	1	-3.871600
2001Q1	1	0	1	1	17	0.618356	14	1	1	-3.786733
2001Q2	1	0	1	1	18	0.695274	15	1	1	-3.689360
2001Q3	1	0	1	1	19	0.591183	16	1	1	-3.858929

Glossary of Variables used in Econometric Analyses

Variable Name	Description
VOL1_3WS	Total workshared First-Class letters volume
VOL1_3Z1	First-Class nonpresort ZIP+4 letters volume
VOL1_3Z3	First-Class 3/5-digit presort ZIP+4 letters volume
VOL1_3B1	First-Class automation basic letters volume
VOL1_3B3	First-Class 3-digit automation letters volume
VOL1_3B5	First-Class 5-digit automation letters volume
VOL1_3F1	First-Class automation basic flats volume
VOL1_3F3	First-Class 3/5-digit automation flats volume
VOL1_3C	First-Class carrier-route presort letters volume
VOL05SP	Private single-piece First-Class cards volume
VOL5_7NA	First-Class presort, nonautomated cards volume
VOL5_7R	First-Class 3/5-digit presort residual cards volume
VOL5_7Z1	First-Class nonpresort ZIP+4 cards volume
VOL5_7Z3	First-Class 3/5-digit presort ZIP+4 cards volume
VOL5_7B1	First-Class automation basic cards volume
VOL5_7B3	First-Class 3-digit automation cards volume
VOL5_7B5	First-Class 5-digit automation cards volume
VOL5_7C	First-Class carrier-route cards volume
VOL19N_L	Standard regular basic nonautomated letters volume
VOL19N_NL	Std regular basic nonautomated nonletters volume
VOL19Z	Std regular required presort ZIP+4 letters volume
VOL19B	Std regular automation basic letters volume
VOL19F	Std regular automation basic flats volume
VOL21N_L	Std regular presort nonautomated letters volume
VOL21N_NL	Std regular presort nonautomated nonletters volume
VOL21Z	Std regular 3/5-digit ZIP+4 letters volume
VOL21B3	Std regular automation 3-digit letters volume
VOL21B5	Std regular automation 5-digit letters volume
VOL21F	Std regular automation 3/5-digit flats volume
VOL22N_L	Std nonprofit basic nonautomated letters volume
VOL22N_NL	Std nonprofit basic nonautomated nonletters volume
VOL22Z	Std nonprofit required presort ZIP+4 letters volume
VOL22B	Std nonprofit automation basic letters volume
VOL22F	Std nonprofit automation basic flats volume

Variable Name	Description
VOL24N_L	Std nonprofit presort nonautomated letters volume
VOL24N_NL	Std nonprofit presort nonautomated nonletters volume
VOL24Z	Std nonprofit 3/5-digit ZIP+4 letters volume
VOL24B3	Std nonprofit automation 3-digit letters volume
VOL24B5	Std nonprofit automation 5-digit letters volume
VOL24F	Std nonprofit automation 3/5-digit flats volume
D1_3NA	First-Class presort, nonautomated discount
D1_3Z1	First-Class nonpresort ZIP+4 letters discount
D1_3Z3	First-Class 3/5-digit ZIP+4 letters discount
D1_3B1	First-Class automation basic letters discount
D1_3B3	First-Class automation 3-digit letters discount
D1_3B5	First-Class automation 5-digit letters discount
D1_3F1	First-Class automation basic flats discount
D1_3F3	First-Class automation 3/5-digit flats discount
D1_3C	First-Class carrier-route letters discount
D5_7NA	First-Class presort, nonautomated cards discount
D5_7Z1	First-Class nonpresort ZIP+4 cards discount
D5_7Z3	First-Class 3/5-digit ZIP+4 cards discount
D5_7B1	First-Class automation basic cards discount
D5_7B3	First-Class automation 3-digit cards discount
D5_7B5	First-Class automation 5-digit cards discount
D5_7C	First-Class carrier-route cards discount
D19Z	Standard regular, required presort ZIP+4 letters discount
D19B	Std. regular automation basic letters discount
D19F	Std. regular automation basic flats discount
D21Z	Std. regular 3/5-digit presort, ZIP+4 letters discount
D21B3	Std. regular automation 3-digit letters discount
D21B5	Std. regular automation 5-digit letters discount
D21F	Std. regular automation 3/5-digit flats discount
D22Z	Std. nonprofit, required presort ZIP+4 letters discount
D22B	Std. nonprofit automation basic letters discount
D22F	Std. nonprofit automation basic flats discount
D24Z	Std. nonprofit 3/5-digit presort ZIP+4 letters discount
D24B3	Std. nonprofit automation 3-digit letters discount
D24B5	Std. nonprofit automation 5-digit letters discount
D24F	Std. nonprofit automation 3/5-digit flats discount

Variable Name	Description
VOL01SP	First-Class single-piece letters volume
VOL1_3WS	First-Class workshared letters volume
VOL4	First-Class stamped cards volume
VOL5_7	First-Class private cards volume
VOL2R	Periodical regular rate volume
VOL11	Periodical within county volume
VOL12_13	Periodical nonprofit and classroom volume
VOL3R_NCR	Standard regular volume
VOL3R_CR	Standard enhanced carrier route volume
VOL3N	Standard bulk nonprofit volume
VOL25	Standard parcel post volume
VOL28	Standard bound printed matter volume
VOL29_30	Standard Media and Library rate volume
VOL10	Mailgrams volume
VOL31	Postal penalty volume
VOL33	Free-for-the-Blind volume
VOL35	Registered mail volume
VOL36	Insured mail volume
VOL37	Certified mail volume
VOL38	Collect-on-Delivery (COD) volume
VOL_RR	Return receipts volume
VOL39	Money orders volume
VOL_DC	Delivery and signature confirmation volume

Variable Name	Description
PX01SP	First-Class single-piece letters price index
PX1_3WSU	First-Class workshared letters price index (including user costs)
PX1_3U	First-Class letters price index (including user costs)
D1_3WS	First-Class letters worksharing discount
PX4	First-Class stamped cards price index
PX05SP	First-Class single-piece private cards price index
PX5_7WSU	First-Class workshared cards price index (including user costs)
PX5_7U	First-Class private cards price index (including user costs)
PX2R	Periodical regular rate price index
PX11	Periodical within county price index
PX12_13	Periodical nonprofit and classroom price index
PX3R_NCRU	Standard regular price index (including user costs)
PX3R_CR	Standard enhanced carrier route price index
PX3NU	Standard bulk nonprofit price index (including user costs)
PX25	Standard parcel post price index
PX_PR_PP	Priority Mail price constructed using parcel post billing determinants
PX_UPS_R	Residential Ground UPS price index
PX28	Bound printed matter price index
PX29_30	Media and Library Rate price index
PX35	Registered mail price index
PX36	Insured mail price index
PX37	Certified mail price index
PX38	COD price index
PX_RR	Return receipts price index
PX39	Money orders price index
PX_DC	Delivery confirmation price index

Variable Name	Description
N22_PLUS	Adult population, 22 years & older
PC	Personal consumption deflator
YD96C	Disposable income, 1996 dollars (per adult)
YD96PERM	Long-run income per adult, 1996 dollars
C96C	Personal consumption expenditures (per adult)
STR96C	Retail sales, 1996 dollars (per adult)
UCAP	Capacity utilization of manufacturing sector
WPIP	Wholesale price of pulp, paper, and allied products (1996 dollars)
WP_NWS	Price of newspaper advertising (1996 dollars)
WP_ADVPR	Price of direct-mail advertising (1996 dollars)
CS96C_INT	Consumption expenditures, Internet Service Providers (1996 $ per adult)
I_ADV	Internet advertising expenditures (1996 $ per adult)
SEP1_15	Proportion of Postal quarter, Sept. 1 - 15
SEP16_30	Proportion of Postal quarter, Sept. 16 - 30
OCT	Proportion of Postal quarter, Oct. 1 - 31
NOV_DEC10	Proportion of Postal quarter, Nov. 1 - Dec. 10
DEC11_12	Proportion of Postal quarter, Dec. 11 - 12
DEC13_15	Proportion of Postal quarter, Dec. 13 - 15
DEC16_17	Proportion of Postal quarter, Dec. 16 - 17
DEC18_19	Proportion of Postal quarter, Dec. 18 - 19
DEC20_21	Proportion of Postal quarter, Dec. 20 - 21
DEC22_23	Proportion of Postal quarter, Dec. 22 - 23
DEC24	Proportion of Postal quarter, Dec. 24
DEC25_JAN1	Proportion of Postal quarter, Dec. 25 - Jan. 1
JAN_FEB	Proportion of Postal quarter, Jan. 2 - end of Feb.
MARCH	Proportion of Postal quarter, Mar. 1 - 31
APR1_15	Proportion of Postal quarter, Apr. 1 - 15
APR16_MAY	Proportion of Postal quarter, Apr. 16 - May 31
JUNE	Proportion of Postal quarter, June 1 - 30
JUL_AUG	Proportion of Postal quarter, July 1 - Aug. 31
BDAYS	Number of business days in Postal quarter
LT_WS	Logarithmic time trend
LT_WSQ	Logarithmic time trend squared
GDIST	Dummy variable for distribution of govt mail by category starting in 1988Q1
MC95	Dummy for implementation of MC95-1, 1996Q4
D1_3WS_FIT	Ln(D1_3WS) ÷ Fitted ratio of workshared to single-piece letters
MACH_DUM	Machine dummy variable

Variable Name	Description
XOD5_7	Pct of Std Regular mail for which First-Class cards rates are lower
D_TREND90	Trend from 1988Q4 - 1990Q4
D88Q4	Dummy variable equal to one in 1988Q4, zero elsewhere
D91Q3	Dummy variable equal to one in 1991Q3, zero elsewhere
TREND	Time trend
D_R97	Dummy for implemenatation of R97-1, 1999Q2
DVOL4	Dummy variable equal to one starting in 2000Q4
D_EL1	Dummy for Postal quarters in which Congressional elections are held
D_EL3	Dummy for Postal quarters in the spring preceding Congressional elections
RULE94	Dummy for rule changes restricting preferred-rate eligibility, 1994Q1
NEWRPT	Dummy for new reporting procedure, 1985
D87	Dummy for rule restricting within-county eligibility, 1987
PANELCHG	Dummy for change in RPW system in 1993Q2
NEWMLR	Dummy for new classroom mailer, 1987Q3
MSADJ	Dummy for restatement of RPW data, 1993
D97Q4	Dummy for 1997Q4, quarter of UPS's most recent strike
D98Q1_2	Dummy for 1998Q1 and 1998Q2
D_DC	Dummy for introduction of Delivery Confirmation, 1999Q3
SEARS	Dummy for year following cancellation of Sears' catalog
D98Q1	Dummy equal to one starting in 1998Q1
DVOL29	Dummy equal to one starting in 2001Q1
T97	Time trend starting in 1997Q1
BGVOL1_3	Ln(First-Class Letters volume per adult per business day)
TMC96-3	Time trend starting with implementation of MC96-3, 1997Q4
MC96-3	Dummy for implementation of MC96-3, 1997Q4
D_MEPS	Dummy equal to one from 1995Q2 through the present
BGVOL8	Ln(Priority Mail volume per adult per business day)

III. Econometric Results

The econometric demand equations discussed in my testimony are presented below. The output for each demand equation contains the following information. On the first page of the output for each demand equation is the name of the mail category, the sample period used in modeling the demand equation, and the coefficient estimates, standard errors, and t-statistics for all of the non-seasonal variables used to explain mail volume demand, as well as t-statistics on the sum of the current and lagged price coefficients. The second page of output presents regression diagnostics, the k^2 parameters used to impose Shiller restrictions on the price distributions, the parameters used in constructing the z-variable for those categories which include a z-variable as an explanatory variable, as well as information on the autocorrelation structure of the residuals, including the estimated rho-coefficients (as well as standard errors and t-statistics). The third page presents seasonal coefficients, standard errors, and t-statistics, as well as an index constructed from the seasonal variables measuring the seasonal variation of mail volume by Postal quarter. The final page presents regression residuals. The residuals on this page are equal to the natural logarithm of mail volume (per adult per business day) minus the fitted value from the regression.

The regression results for delivery confirmation are summarized on a single page at the end of this section.

Demand Equation for: Single-Piece First-Class Letters
Sample Period : 1983Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-4.811899	0.474343	-10.144345
YD96PERM	0.511885	0.024187	21.163650
UCAP4	0.099443	0.067024	1.483699
LT_WS	1.598653	0.246092	6.496158
LT_WSQ	-0.224155	0.031997	-7.005487
CS96C_INT_LWS	-0.497755	0.085249	-5.838841
GDIST	0.017394	0.008168	2.129490
MC95	0.035212	0.008855	3.976477
D1_3WS	-0.027027	0.011496	-2.350989
PX05SP	0.003800	0.003819	0.995097
PX01SP	-0.168394	0.101494	-1.659148
lag 1	-0.143059	0.098732	-1.448958
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	-0.168394
lag 1	-0.143059
lag 2	0.000000
lag 3	0.000000
lag 4	-0.000000
Sum	-0.311452

T-Statistic on Sum
-4.619376

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.010361
Mean Sq. Error	0.000188
Standard Error of Model	0.013725
Durbin-Watson	2.161140
R-Square	0.980635
Adj. R-Square	0.973945
Degrees of Freedom	55.
F-Statistic	146.589
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.000120
4-year Net Trend	0.998553
3-year Net Trend	1.000863
2-year Net Trend	1.001296
1-year Net Trend	1.008038

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

CHOSEN K-SQUARE VALUES

PX01SP	0.000000

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.082209	-0.082360	0.116248	-0.708483
2	.	0.031746	0.025121	0.117041	0.214633
3	.	-0.029838	-0.026041	0.117851	-0.220966
4	.	-0.185373	-0.196665	0.118678	-1.657132
5	.	-0.055592	-0.094765	0.119523	-0.792863
6	.	-0.142858	-0.156335	0.120386	-1.298613
7	.	-0.068141	-0.121766	0.121268	-1.004106
8	.	-0.089554	-0.170828	0.122169	-1.398285
9	.	-0.047936	-0.138003	0.123091	-1.121142

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.106150	0.043898	-2.418108
SEP16_30	-0.106150	0.043898	-2.418108
OCT	-0.106150	0.043898	-2.418108
NOV_DEC10	0.408523	0.037091	11.014074
DEC11_12	0.408523	0.037091	11.014074
DEC13_15	0.408523	0.037091	11.014074
DEC16_17	0.408523	0.037091	11.014074
DEC18_19	0.408523	0.037091	11.014074
DEC20_21	0.408523	0.037091	11.014074
DEC22_23	-0.435460	0.189064	-2.303242
DEC24	-0.435460	0.189064	-2.303242
DEC25_JAN1	-0.435460	0.189064	-2.303242
JAN_FEB	0.208361	0.039089	5.330430
MARCH	-0.016046	0.062357	-0.257321
APR1_15	0.613511	0.224061	2.738143
APR16_MAY	-0.105403	0.067190	-1.568727
JUNE	0.178083	0.113304	1.571725

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.188022	0.115527	0.078138	0.003707
1984	0.193167	0.122540	0.060417	0.009282
1985	0.203458	0.105927	0.067116	0.009899
1986	0.195416	0.105967	0.066310	0.011970
1987	0.187374	0.097660	0.067685	0.015275
1988	0.183354	0.104294	0.061712	0.021885
1989	0.175312	0.129145	0.064255	0.025190
1990	0.167270	0.135779	0.055051	0.027460
1991	0.159228	0.142413	0.050690	0.028077
1992	0.151186	0.144206	0.053440	0.031804
1993	0.139124	0.137274	0.052387	0.033427
1994	0.139124	0.148938	0.053741	0.033436
1995	0.131082	0.165632	0.060541	0.033445
1996	0.123040	0.175772	0.055771	0.029696
1997	0.106957	0.178940	0.057125	0.030123
1998	0.098915	0.168880	0.060179	0.033467
1999	0.094894	0.172007	0.061533	0.033476
2000	0.094894	0.180165	0.076488	0.033493
2001	0.078811	0.196480	0.075118	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.005515	-0.001020	0.003335	-0.006815
1984	-0.000236	0.010551	-0.008617	0.009507
1985	-0.018949	-0.003357	0.004625	0.004555
1986	0.015070	-0.020186	0.007191	0.007176
1987	0.006729	0.003880	-0.009640	-0.009313
1988	-0.002333	-0.014296	0.001747	-0.002669
1989	-0.010950	0.022207	0.002678	-0.012843
1990	0.002090	0.001923	0.000381	-0.002521
1991	0.023906	-0.006056	0.013238	-0.014816
1992	-0.032672	-0.008314	-0.005559	0.001864
1993	0.005316	0.022961	0.013315	0.012319
1994	-0.000728	0.017789	-0.021149	0.026562
1995	-0.016297	-0.014412	-0.010868	-0.006311
1996	0.024790	-0.003066	-0.010714	0.010960
1997	0.007666	0.001205	0.009145	-0.000736
1998	0.004320	-0.008429	0.001084	-0.001781
1999	-0.012526	-0.008951	0.019789	-0.001816
2000	-0.011774	-0.001971	-0.011900	-0.013715
2001	0.010145	0.010889	0.001882	

Demand Equation for: Workshared First-Class Letters
Sample Period : 1983Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-5.184412	0.920886	-5.629809
YD96PERM	0.844224	0.384733	2.194311
UCAP	0.372819	0.179882	2.072576
LT_WS	0.429728	0.117535	3.656172
GDIST	0.034065	0.021015	1.620995
MC95	-0.046349	0.015766	-2.939809
D1_3WS_FIT	0.026502	0.011672	2.270542
PX3R_NCRU	0.008229	0.279093	0.029483
PX5_7WSU	0.006228	0.006946	0.896603
PX1_3WSU	-0.000034	0.478573	-0.000072
lag 1	-0.018026	0.291685	-0.061798
lag 2	-0.028339	0.286595	-0.098882
lag 3	-0.024523	0.195942	-0.125155
lag 4	0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX1_3WSU
current	-0.000034
lag 1	-0.018026
lag 2	-0.028339
lag 3	-0.024523
lag 4	0.000000
Sum	-0.070922

T-Statistic on Sum
-0.149179

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.034459
Mean Sq. Error	0.000650
Standard Error of Model	0.025499
Durbin-Watson	1.795894
R-Square	0.994940
Adj. R-Square	0.992935
Degrees of Freedom	53.
F-Statistic	496.212
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.997660
4-year Net Trend	0.999094
3-year Net Trend	1.001199
2-year Net Trend	0.996643
1-year Net Trend	0.992167

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.000000

CHOSEN K-SQUARE VALUES

PX1_3WSU	0.443750

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.099233	0.099482	0.116248	0.855776
2	.	0.121073	0.115251	0.117041	0.984708
3	.	0.140343	0.122964	0.117851	1.043387
4	.	-0.145557	-0.197192	0.118678	-1.661572
5	.	-0.022223	-0.013554	0.119523	-0.113398
6	.	-0.028752	-0.014503	0.120386	-0.120474
7	.	-0.126183	-0.084562	0.121268	-0.697313
8	.	-0.224378	-0.252217	0.122169	-2.064484
9	.	-0.049914	0.013377	0.123091	0.108678

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.196257	0.137964	1.422525
SEP16_30	0.196257	0.137964	1.422525
OCT	0.196257	0.137964	1.422525
NOV_DEC10	0.245911	0.075202	3.270012
DEC11_12	0.413061	0.246314	1.676968
DEC13_15	0.413061	0.246314	1.676968
DEC16_17	0.413061	0.246314	1.676968
DEC18_19	-0.267530	0.240055	-1.114453
DEC20_21	-0.267530	0.240055	-1.114453
DEC22_23	-0.267530	0.240055	-1.114453
DEC24	-0.267530	0.240055	-1.114453
DEC25_JAN1	2.916210	1.130524	2.579520
JAN_FEB	0.037877	0.117966	0.321086
MARCH	0.354418	0.156028	2.271502
APR1_15	0.112604	0.062071	1.814111
APR16_MAY	0.112604	0.062071	1.814111
JUNE	0.478740	0.251533	1.903290

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.198695	0.291962	0.197685	0.138772
1984	0.201931	0.257197	0.192000	0.142558
1985	0.208402	0.292453	0.186367	0.141417
1986	0.215648	0.282735	0.187271	0.146984
1987	0.222895	0.275490	0.190991	0.150268
1988	0.230530	0.265772	0.187166	0.156838
1989	0.236470	0.214012	0.185253	0.160122
1990	0.235695	0.254040	0.181480	0.160624
1991	0.232307	0.254956	0.175847	0.159483
1992	0.228919	0.253399	0.183288	0.166205
1993	0.222532	0.265124	0.185881	0.165852
1994	0.219921	0.243553	0.189545	0.164868
1995	0.219145	0.217746	0.193208	0.163884
1996	0.218369	0.252828	0.195040	0.154621
1997	0.216817	0.254383	0.198704	0.158100
1998	0.216041	0.257633	0.199970	0.161423
1999	0.215653	0.260884	0.203634	0.160439
2000	0.215653	0.241647	0.201369	0.158471
2001	0.214102	0.265760	0.198405	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.007990	0.040116	-0.010779	0.022615
1984	-0.016749	-0.042641	-0.001615	-0.030625
1985	0.005454	-0.002024	-0.034867	-0.007079
1986	0.016027	-0.012304	0.011923	0.043057
1987	0.013782	0.001234	0.026388	-0.013923
1988	0.017377	0.029586	0.028788	-0.020694
1989	0.046463	-0.006696	0.000613	-0.032816
1990	-0.034321	0.007331	0.015158	-0.000151
1991	-0.046739	0.029735	-0.024701	0.007833
1992	0.048187	-0.007802	0.024750	0.000115
1993	-0.043584	-0.040010	-0.032941	-0.002504
1994	-0.029919	-0.019029	0.000303	-0.016396
1995	0.012868	0.039427	0.016481	0.021454
1996	0.008831	-0.002278	0.005524	-0.000767
1997	-0.004090	0.002084	0.006678	0.008571
1998	-0.007882	-0.016889	-0.011797	0.012357
1999	0.014007	-0.000306	-0.011133	-0.000084
2000	0.014759	0.010731	-0.003327	0.008990
2001	-0.001790	-0.008932	-0.011423	

Demand Equation for: Private First-Class Cards
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-6.957343	0.220217	-31.593123
YD96PERM	0.700151	0.043580	16.065878
CS96C_INT_LWS	-0.169642	0.114765	-1.478171
MACH_DUM	-0.143152	0.022943	-6.239485
XOD5_7	0.029514	0.026534	1.112292
XOD_TREND90	0.012610	0.002137	5.900566
D88Q4	0.244985	0.075224	3.256743
D91Q3	0.253349	0.069771	3.631147
PX1_3U	0.002002	0.477110	0.004197
lag 1	0.040561	0.881620	0.046008
lag 2	0.073124	0.934440	0.078255
lag 3	0.047236	0.489078	0.096582
lag 4	0.000000	0.000000	0.000000
PX5_7U	-0.532605	0.443713	-1.200336
lag 1	-0.319366	0.788614	-0.404972
lag 2	-0.001163	0.890153	-0.001307
lag 3	-0.105558	0.538987	-0.195845
lag 4	-0.198286	0.159942	-1.239740

LONG RUN PRICE ELASTICITIES

	PX1_3U	PX5_7U	Sum
current	0.002002	-0.532605	
lag 1	0.040561	-0.319366	
lag 2	0.073124	-0.001163	
lag 3	0.047236	-0.105558	
lag 4	0.000000	-0.198286	
Sum	0.162924	-1.156979	-0.994054
T-Statistic on Sum	1.435017	-8.818068	-7.905065

Z-Variable Parameters

	Z-Parameters	Std. Error	T-Ratio
Parameter 1	0.229783	0.108692	2.114078
Parameter 2	214.067685	710.212671	0.301413
Parameter 3	0.140977	0.074947	1.881029

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.373478
Mean Sq. Error	0.003890
Standard Error of Model	0.062373
Durbin-Watson	2.318152
R-Square	0.965274
Adj. R-Square	0.955869
Degrees of Freedom	96.
F-Statistic	133.425
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.998379
4-year Net Trend	0.990910
3-year Net Trend	0.985787
2-year Net Trend	0.992634
1-year Net Trend	0.988645

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.000000

CHOSEN K-SQUARE VALUES

PX1_3U	0.376563
PX5_7U	0.030469

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.000000	0.000000	0.000000
Rho-2	-0.241899	0.087991	-2.749118

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.161338	-0.161692	0.091287	-1.771247
2	.	-0.034849	-0.062612	0.091670	-0.683012
3	.	-0.098108	-0.118442	0.092057	-1.286608
4	.	-0.068972	-0.118258	0.092450	-1.279151
5	.	0.150425	0.127128	0.092848	1.369214
6	.	-0.057935	-0.043997	0.093250	-0.471820
7	.	0.016438	-0.017416	0.093659	-0.185950
8	.	-0.115517	-0.096505	0.094072	-1.025867
9	.	-0.065605	-0.123910	0.094491	-1.311341

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.128484	0.086170	1.491054
SEP16_30	0.128484	0.086170	1.491054
OCT	0.906495	0.178480	5.078971
NOV_DEC10	-0.640577	0.137501	-4.658706
DEC11_12	-0.640577	0.137501	-4.658706
DEC13_15	0.555384	0.106317	5.223847
DEC16_17	0.555384	0.106317	5.223847
DEC18_19	0.555384	0.106317	5.223847
DEC20_21	0.555384	0.106317	5.223847
DEC22_23	0.555384	0.106317	5.223847
DEC24	0.555384	0.106317	5.223847
DEC25_JAN1	0.555384	0.106317	5.223847
JAN_FEB	0.000000	0.000000	0.000000
MARCH	0.000000	0.000000	0.000000
APR1_15	-0.000000	0.000000	0.000000
APR16_MAY	0.000000	0.000000	0.000000
JUNE	0.000000	0.000000	0.000000

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	-0.026739			0.160850
1972	-0.022260			0.144292
1973	-0.001976			0.142798
1974	0.012645			0.133004
1975	0.027266			0.123957
1976	0.041886			0.102876
1977	0.057689			0.092336
1978	0.063307			0.086318
1979	0.072786	0.004272		0.084824
1980	0.078359	0.012817		0.065984
1981	0.089505	0.029905		0.055443
1982	0.092292	0.038450		0.044903
1983	0.099528	0.034711		0.034362
1984	0.105014	0.034711		0.031374
1985	0.109908	0.052067		0.030627
1986	0.103238	0.060745		0.030627
1987	0.096567	0.069423		0.029133
1988	0.087154	0.078101		0.026145
1989	0.068327	0.082440		0.024651
1990	0.067735	0.091118		0.023157
1991	0.073221	0.099796		0.022410
1992	0.066551	0.108473		0.020916
1993	0.059811	0.116486		0.019651
1994	0.047654	0.120825		0.018139
1995	0.059671	0.102138		0.016627
1996	0.077766	0.092129		0.014360
1997	0.113955	0.072111		0.014360
1998	0.125972	0.062102		0.012848
1999	0.125902	0.061436		0.011337
2000	0.113745	0.065775		0.008314
2001	0.143857	0.037079		

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971			0.036502	-0.036017
1972	-0.074977	0.196224	-0.017779	-0.003989
1973	0.152797	-0.056677	-0.032952	-0.076220
1974	-0.040865	0.034287	-0.002651	-0.030306
1975	-0.080303	-0.031380	0.119623	-0.024041
1976	-0.085667	0.014172	-0.122048	0.173301
1977	0.048575	0.090660	-0.069627	-0.029009
1978	0.177033	-0.088871	0.030617	-0.018973
1979	0.001145	-0.027337	-0.004759	-0.036208
1980	0.026875	0.005584	-0.011119	-0.028928
1981	0.021776	0.037823	0.015986	0.001774
1982	-0.036662	-0.080527	0.020293	0.026226
1983	-0.037870	0.020770	-0.055482	0.015733
1984	-0.065217	0.068313	-0.087895	0.037375
1985	0.060983	0.067063	-0.057388	-0.107645
1986	-0.012882	0.053355	0.062902	-0.028990
1987	-0.041661	-0.011420	0.037363	-0.034900
1988	0.056124	0.084651	-0.026136	-0.001368
1989	-0.047279	0.005657	-0.048740	-0.036290
1990	0.003860	0.025453	-0.055321	0.067798
1991	-0.009165	0.058186	0.001726	0.066299
1992	-0.007134	-0.034514	-0.031351	0.030546
1993	-0.010997	-0.039855	-0.032079	-0.042927
1994	0.025648	-0.057426	-0.000749	-0.043842
1995	-0.002417	0.001362	0.000827	0.008709
1996	0.001731	-0.014388	-0.019351	0.030377
1997	0.058170	-0.005325	0.014879	-0.016095
1998	0.017139	0.060340	0.060927	0.078829
1999	0.000287	-0.009320	-0.045143	-0.044454
2000	-0.020573	-0.060497	0.091244	-0.011489
2001	0.006635	-0.030158	-0.018910	

Demand Equation for: Stamped Cards
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-7.765690	0.791873	-9.806736
YD96PERM	0.710878	0.029703	23.932879
TREND	-0.004575	0.002387	-1.916750
D_R97	-0.057181	0.215855	-0.264904
DVOL4	-0.821667	0.190062	-4.323151
PX4	-0.807590	0.465721	-1.734063

REGRESSION DIAGNOSTICS

Sum of Square Resids	3.717262
Mean Sq. Error	0.034419
Standard Error of Model	0.185524
Durbin-Watson	1.906617
R-Square	0.783127
Adj. R-Square	0.755014
Degrees of Freedom	108.
F-Statistic	32.499
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.988625
4-year Net Trend	0.911821
3-year Net Trend	1.010196
2-year Net Trend	1.028358
1-year Net Trend	1.330030

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.778361	0.057963	13.428578

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.038190	-0.041904	0.090909	-0.460948
2	.	0.056411	0.058346	0.091287	0.639143
3	.	-0.048122	-0.045830	0.091670	-0.499943
4	.	0.032599	0.027416	0.092057	0.297815
5	.	-0.105773	-0.112331	0.092450	-1.215042
6	.	-0.037361	-0.065870	0.092848	-0.709438
7	.	-0.024858	-0.025286	0.093250	-0.271165
8	.	0.074221	0.080865	0.093659	0.863397
9	.	-0.055778	-0.031833	0.094072	-0.338389

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.752466	1.380100	-1.269811
SEP16_30	0.375004	0.396334	0.946181
OCT	-0.826898	0.384015	-2.153297
NOV_DEC10	0.241860	0.360212	0.671438
DEC11_12	0.241860	0.360212	0.671438
DEC13_15	0.241860	0.360212	0.671438
DEC16_17	0.241860	0.360212	0.671438
DEC18_19	1.288122	1.769514	0.727952
DEC20_21	-3.135635	0.937748	-3.343793
DEC22_23	-3.135635	0.937748	-3.343793
DEC24	-0.235470	0.235128	-1.001453
DEC25_JAN1	-0.235470	0.235128	-1.001453
JAN_FEB	-0.235470	0.235128	-1.001453
MARCH	-0.235470	0.235128	-1.001453
APR1_15	-0.235470	0.235128	-1.001453
APR16_MAY	-0.235470	0.235128	-1.001453
JUNE	-0.235470	0.235128	-1.001453

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	-0.179179	-0.235470	-0.235470	-0.296791
1972	-0.242831	-0.235470	-0.235470	-0.290024
1973	-0.213209	-0.235470	-0.235470	-0.283385
1974	-0.175971	-0.235470	-0.235470	-0.259221
1975	-0.185510	-0.235470	-0.235470	-0.272721
1976	-0.195049	-0.235470	-0.235470	-0.258967
1977	-0.294818	-0.235470	-0.235470	-0.252090
1978	-0.295911	-0.235470	-0.235470	-0.252201
1979	-0.265195	-0.235470	-0.235470	-0.245561
1980	-0.228548	-0.235470	-0.235470	-0.234897
1981	-0.247324	-0.235470	-0.235470	-0.228020
1982	-0.283338	-0.235470	-0.235470	-0.221143
1983	-0.344253	-0.235470	-0.235470	-0.214266
1984	-0.345320	-0.235470	-0.235470	-0.214725
1985	-0.247435	-0.258127	-0.235470	-0.204536
1986	-0.192581	-0.303442	-0.235470	-0.232012
1987	-0.137727	-0.348757	-0.235470	-0.239111
1988	-0.143645	-0.359512	-0.235470	-0.253308
1989	-0.139133	-0.389195	-0.235470	-0.260406
1990	-0.146442	-0.342731	-0.235470	-0.253767
1991	-0.163142	-0.289958	-0.235470	-0.243578
1992	-0.161061	-0.282499	-0.235470	-0.278153
1993	-0.148551	-0.302144	-0.235470	-0.285837
1994	-0.129771	-0.363806	-0.235470	-0.293019
1995	-0.127691	-0.348174	-0.235470	-0.300201
1996	-0.135000	-0.301711	-0.235470	-0.270660
1997	-0.166240	-0.241479	-0.235470	-0.273430
1998	-0.197401	-0.234021	-0.235470	-0.255583
1999	-0.220213	-0.261123	-0.235470	-0.237736
2000	-0.234675	-0.322786	-0.235470	-0.202042
2001	-0.306388	-0.260690	-0.235470	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971		-0.022492	0.104854	0.161349
1972	0.049590	0.035384	0.110470	0.221191
1973	0.101304	-0.026447	0.049382	0.036909
1974	0.154463	0.007881	0.057741	0.011054
1975	-0.007967	0.071689	-0.151230	-0.060894
1976	0.094335	-0.094797	-0.020019	0.100544
1977	0.026323	0.081284	-0.098287	-0.006986
1978	-0.013826	-0.053302	-0.117999	-0.126758
1979	-0.022096	0.024504	-0.055052	-0.056462
1980	-0.164537	0.098457	-0.256326	-0.091095
1981	-0.023801	-0.026389	-0.358001	-0.032731
1982	0.342254	-0.187221	-0.019970	-0.080128
1983	0.122411	0.072052	0.036658	0.303567
1984	-0.369869	-0.169732	-0.157664	-0.016125
1985	-0.040123	-0.216419	-0.103580	0.319972
1986	-0.259675	-0.021377	0.110795	-0.303657
1987	0.043472	0.156455	-0.198744	-0.168933
1988	0.002715	0.121802	0.450565	-0.174741
1989	0.247204	-0.171620	-0.042082	0.043294
1990	0.050742	-0.171787	0.089175	-0.100432
1991	0.079460	0.167234	-0.111370	0.090365
1992	0.016770	0.266075	0.028183	0.259203
1993	-0.261199	0.239144	-0.122155	0.139145
1994	-0.238538	0.076381	-0.030282	0.031515
1995	-0.038682	0.039309	-0.083869	0.056032
1996	0.098403	-0.095220	-0.063104	0.102297
1997	0.333160	0.289944	-0.155198	-0.262103
1998	0.108197	-0.316345	0.044548	-0.072120
1999	0.109898	-0.144604	0.138657	0.002430
2000	-0.449426	-0.237849	-0.104267	-0.233357
2001	0.034840	0.223959	0.794071	

Demand Equation for: Standard Regular
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-1.648880	0.126649	-13.019288
STR96C2	0.699849	0.064823	10.796311
WP_NWS_N	0.135417	0.092047	1.471178
WP_ADVPR4	-1.005936	0.137135	-7.335374
TREND	0.005654	0.000680	8.314237
I_ADV_L	-0.440629	0.093090	-4.733364
D_R97	0.100591	0.010536	9.547405
PX1_3WSU	0.011985	0.000000	0.000000
PX3R_NCRU	-0.156519	0.080579	-1.942432
lag 1	-0.231289	0.077755	-2.974587
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

	PX3R_NCRU
current	-0.156519
lag 1	-0.231289
lag 2	0.000000
lag 3	-0.000000
lag 4	-0.000000
Sum	-0.387808

T-Statistic on Sum
-9.417810

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.008280
Mean Sq. Error	0.000244
Standard Error of Model	0.015605
Durbin-Watson	1.724298
R-Square	0.995924
Adj. R-Square	0.993527
Degrees of Freedom	34.
F-Statistic	593.450
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.999657
4-year Net Trend	1.000000
3-year Net Trend	0.997887
2-year Net Trend	1.000406
1-year Net Trend	0.993160

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

CHOSEN K-SQUARE VALUES

PX3R_NCRU	0.000000

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.000000	0.000000	0.000000
Rho-2	-0.458269	0.121024	-3.786598
Rho-4	-0.535132	0.119476	-4.478979

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.077642	0.081656	0.141421	0.577398
2	.	-0.113836	-0.132327	0.142857	-0.926289
3	.	-0.387516	-0.406620	0.144338	-2.817149
4	.	-0.172971	-0.190445	0.145865	-1.305625
5	.	0.039675	-0.049982	0.147442	-0.338994
6	.	-0.068816	-0.343689	0.149071	-2.305537
7	.	0.079944	0.002072	0.150756	0.013743
8	.	-0.139214	-0.316984	0.152499	-2.078602
9	.	0.150513	-0.079026	0.154303	-0.512145

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.000000	0.000000	0.000000
SEP16_30	-0.000000	0.000000	0.000000
OCT	0.986524	0.112538	8.766137
NOV_DEC10	-0.294632	0.041640	-7.075708
DEC11_12	-0.294632	0.041640	-7.075708
DEC13_15	-0.294632	0.041640	-7.075708
DEC16_17	0.181149	0.050020	3.621540
DEC18_19	0.181149	0.050020	3.621540
DEC20_21	0.181149	0.050020	3.621540
DEC22_23	0.181149	0.050020	3.621540
DEC24	0.181149	0.050020	3.621540
DEC25_JAN1	0.181149	0.050020	3.621540
JAN_FEB	0.181149	0.050020	3.621540
MARCH	0.181149	0.050020	3.621540
APR1_15	0.782583	0.189830	4.122548
APR16_MAY	-0.121411	0.061926	-1.960584
JUNE	0.478861	0.170085	2.815422

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.234225	0.181149	0.145334	0.116931
1989	0.208546	0.181149	0.147708	0.122499
1990	0.213423	0.181149	0.133846	0.125283
1991	0.233441	0.177432	0.124611	0.125283
1992	0.238045	0.177432	0.133921	0.132930
1993	0.237243	0.162564	0.134637	0.134494
1994	0.221828	0.155130	0.139221	0.133065
1995	0.226432	0.147696	0.150653	0.131637
1996	0.238743	0.140262	0.146097	0.120330
1997	0.263365	0.136545	0.150681	0.122432
1998	0.267968	0.129111	0.155266	0.128066
1999	0.262563	0.121677	0.159850	0.126638
2000	0.247148	0.114243	0.175867	0.123781
2001	0.264063	0.099374	0.171311	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988				
1989	0.027361	-0.005420	-0.013268	-0.024386
1990	-0.011366	-0.003384	0.037822	0.015762
1991	-0.015861	0.006723	-0.010806	-0.002601
1992	-0.018260	0.002109	0.010689	0.005327
1993	0.004510	-0.005004	0.017650	0.006706
1994	-0.009926	-0.010568	-0.017420	0.002464
1995	-0.001091	0.008934	-0.008466	-0.013226
1996	0.020853	0.002353	0.004557	0.000765
1997	-0.003138	0.008841	-0.017492	0.010890
1998	-0.009487	0.004627	0.000976	0.022720
1999	0.008740	-0.009026	-0.017469	-0.010505
2000	0.005495	0.002083	-0.003812	-0.016477
2001	0.004011	-0.000271	0.015761	

Demand Equation for: Standard ECR
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-1.676614	0.423879	-3.955408
STR96C	1.223353	0.147675	8.284093
WP_NWS_N	0.838840	0.164684	5.093636
WP_ADVPR1	-1.611638	0.333577	-4.831383
I_ADV_L	-0.753527	0.166920	-4.514301
TREND	-0.007165	0.001557	-4.601929
D_EL1	0.010485	0.010490	0.999529
D_R97	-0.137431	0.020182	-6.809581
PX3R_CR	-0.233163	0.130329	-1.789030
lag 1	-0.109773	0.189821	-0.578296
lag 2	-0.011673	0.181985	-0.064141
lag 3	-0.123783	0.176397	-0.701729
lag 4	-0.291168	0.124420	-2.340200

LONG RUN PRICE ELASTICITIES

	PX3R_CR
current	-0.233163
lag 1	-0.109773
lag 2	-0.011673
lag 3	-0.123783
lag 4	-0.291168
Sum	-0.769559

T-Statistic on Sum
-6.627534

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.011770
Mean Sq. Error	0.000336
Standard Error of Model	0.018338
Durbin-Watson	1.782356
R-Square	0.975377
Adj. R-Square	0.962010
Degrees of Freedom	35.
F-Statistic	72.970
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.999637
4-year Net Trend	1.000233
3-year Net Trend	0.998983
2-year Net Trend	0.994561
1-year Net Trend	0.984080

CHOSEN K-SQUARE VALUES

PX3R_CR	0.001563

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.072063	0.075112	0.136083	0.551960
2	.	-0.135647	-0.148683	0.137361	-1.082428
3	.	-0.102372	-0.094463	0.138675	-0.681183
4	.	-0.037452	-0.064091	0.140028	-0.457703
5	.	-0.002679	-0.028923	0.141421	-0.204514
6	.	-0.084215	-0.135823	0.142857	-0.950758
7	.	0.072206	0.107548	0.144338	0.745113
8	.	0.001867	-0.066931	0.145865	-0.458857
9	.	-0.067366	-0.047145	0.147442	-0.319752

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.000000	0.000000	0.000000
SEP16_30	0.685348	0.184709	3.710419
OCT	0.685348	0.184709	3.710419
NOV_DEC10	-0.153591	0.122640	-1.252377
DEC11_12	0.050041	0.204007	0.245292
DEC13_15	0.050041	0.204007	0.245292
DEC16_17	0.050041	0.204007	0.245292
DEC18_19	0.050041	0.204007	0.245292
DEC20_21	1.057149	0.496391	2.129670
DEC22_23	1.057149	0.496391	2.129670
DEC24	1.057149	0.496391	2.129670
DEC25_JAN1	-0.470861	0.425002	-1.107902
JAN_FEB	0.131911	0.122521	1.076643
MARCH	0.131911	0.122521	1.076643
APR1_15	0.131911	0.122521	1.076643
APR16_MAY	0.131911	0.122521	1.076643
JUNE	0.376649	0.423639	0.889081

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.234126	0.146717	0.143207	0.143772
1989	0.242462	0.162084	0.139442	0.140183
1990	0.255570	0.136930	0.135677	0.138388
1991	0.265497	0.135651	0.131911	0.138388
1992	0.275423	0.134371	0.131911	0.129786
1993	0.288723	0.139681	0.131911	0.123250
1994	0.285541	0.158847	0.131911	0.116739
1995	0.298649	0.153458	0.131911	0.110228
1996	0.311758	0.128303	0.131911	0.106685
1997	0.332620	0.119381	0.131911	0.109676
1998	0.335020	0.114920	0.131911	0.114108
1999	0.330866	0.118327	0.131911	0.115659
2000	0.320157	0.134312	0.131911	0.118763
2001	0.324957	0.103768	0.131911	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	-0.029134	-0.011797	-0.009575	-0.000509
1989	0.000534	0.008587	0.017487	0.009068
1990	0.003539	-0.007400	-0.013103	0.013608
1991	0.022929	0.022520	0.008928	-0.013636
1992	0.017354	-0.015730	-0.016398	-0.017423
1993	0.019578	0.026087	-0.029542	-0.018654
1994	0.014314	0.001498	0.018538	0.024394
1995	-0.010207	-0.000806	-0.000041	0.001441
1996	-0.020881	-0.004483	0.005375	-0.012816
1997	-0.019982	0.007293	-0.000831	-0.007200
1998	-0.007843	-0.000516	0.003125	0.026512
1999	-0.006256	0.004836	-0.012801	0.002813
2000	0.025129	-0.013885	0.022094	-0.007746
2001	-0.006596	-0.015852	0.004060	

Demand Equation for: Standard Bulk Nonprofit
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-4.772689	0.253054	-18.860359
C96C1	1.018957	0.099107	10.281387
WP_ADVPR2	-0.236269	0.261394	-0.903880
TREND	-0.002951	0.000965	-3.058132
RULE94	-0.021237	0.010084	-2.105966
D_EL1	0.058279	0.016553	3.520781
D_EL3	0.038247	0.016526	2.314332
PX3NU	-0.058173	0.143874	-0.404332
lag 1	-0.010783	0.232321	-0.046414
lag 2	-0.000452	0.251735	-0.001796
lag 3	-0.044341	0.230085	-0.192715
lag 4	-0.116697	0.138144	-0.844745

LONG RUN PRICE ELASTICITIES

	PX3NU
current	-0.058173
lag 1	-0.010783
lag 2	-0.000452
lag 3	-0.044341
lag 4	-0.116697
Sum	-0.230445

T-Statistic on Sum
-2.838236

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.011051
Mean Sq. Error	0.000345
Standard Error of Model	0.018583
Durbin-Watson	2.112153
R-Square	0.984280
Adj. R-Square	0.973473
Degrees of Freedom	32.
F-Statistic	117.862
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.001492
4-year Net Trend	0.997727
3-year Net Trend	1.001908
2-year Net Trend	0.996472
1-year Net Trend	1.002498

CHOSEN K-SQUARE VALUES

PX3NU	0.067188

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.000000	0.000000	0.000000
Rho-2	0.000000	0.000000	0.000000
Rho-4	-0.392490	0.136792	-2.869253

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.132868	-0.143679	0.141421	-1.015965
2	.	-0.203618	-0.264455	0.142857	-1.851187
3	.	-0.111113	-0.218235	0.144338	-1.511975
4	.	-0.041276	-0.170372	0.145865	-1.168013
5	.	0.032029	-0.094422	0.147442	-0.640401
6	.	-0.092231	-0.234987	0.149071	-1.576339
7	.	0.195001	0.145987	0.150756	0.968368
8	.	0.004835	0.016907	0.152499	0.110865
9	.	-0.005591	0.103423	0.154303	0.670255

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.096462	0.171813	-0.561439
SEP16_30	-0.096462	0.171813	-0.561439
OCT	0.501861	0.147397	3.404822
NOV_DEC10	-0.382502	0.155081	-2.466467
DEC11_12	-0.382502	0.155081	-2.466467
DEC13_15	-0.382502	0.155081	-2.466467
DEC16_17	-0.382502	0.155081	-2.466467
DEC18_19	-0.382502	0.155081	-2.466467
DEC20_21	-0.382502	0.155081	-2.466467
DEC22_23	-0.382502	0.155081	-2.466467
DEC24	-0.382502	0.155081	-2.466467
DEC25_JAN1	-0.382502	0.155081	-2.466467
JAN_FEB	-0.094322	0.137956	-0.683708
MARCH	-0.204362	0.137184	-1.489690
APR1_15	-0.204362	0.137184	-1.489690
APR16_MAY	-0.204362	0.137184	-1.489690
JUNE	-0.809666	0.413864	-1.956357

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	-0.028314	-0.151181	-0.232299	-0.217338
1989	-0.033194	-0.151713	-0.222986	-0.225631
1990	-0.024050	-0.154497	-0.213674	-0.229217
1991	-0.010232	-0.157280	-0.204362	-0.228656
1992	-0.005762	-0.159204	-0.204362	-0.242845
1993	-0.003733	-0.168209	-0.204362	-0.244567
1994	-0.013082	-0.168741	-0.204362	-0.245836
1995	-0.008612	-0.167022	-0.204362	-0.247106
1996	0.000532	-0.168086	-0.204362	-0.235924
1997	0.018819	-0.175372	-0.204362	-0.241888
1998	0.023289	-0.179875	-0.203528	-0.250279
1999	0.020849	-0.184378	-0.203528	-0.251548
2000	0.011500	-0.186629	-0.200194	-0.254087
2001	0.025113	-0.191132	-0.198526	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988				
1989	0.011057	-0.009727	0.010094	-0.016713
1990	0.021575	0.003928	0.002286	0.007444
1991	-0.023169	-0.000415	-0.028680	0.007068
1992	0.025235	0.002651	-0.010390	0.002749
1993	-0.016243	0.011476	0.011181	-0.001646
1994	-0.013251	-0.020007	0.024417	-0.025792
1995	-0.009473	0.013189	0.018649	0.000120
1996	-0.019710	-0.000556	-0.010358	0.012452
1997	-0.002168	-0.000190	0.017398	0.010665
1998	-0.020752	0.008785	-0.003526	0.003550
1999	0.006554	0.003630	0.007178	-0.007568
2000	0.008373	0.003593	-0.000911	0.007221
2001	0.032865	-0.014453	-0.039685	

Demand Equation for: Periodical Regular Rate
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-3.679321	0.173827	-21.166565
YD96PERM	0.533686	0.035654	14.968463
UCAP4	0.077046	0.092591	0.832111
WPIP2	-0.140845	0.118861	-1.184954
TREND	-0.001610	0.000490	-3.285153
CS96C_INT_LWS	-0.135539	0.144799	-0.936047
PX2R	-0.000009	0.073268	-0.000121
lag 1	-0.022261	0.091530	-0.243209
lag 2	-0.072067	0.090763	-0.794016
lag 3	-0.071331	0.073249	-0.973809
lag 4	-0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX2R
current	-0.000009
lag 1	-0.022261
lag 2	-0.072067
lag 3	-0.071331
lag 4	-0.000000
Sum	-0.165668

T-Statistic on Sum
-3.132805

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.071103
Mean Sq. Error	0.000711
Standard Error of Model	0.026665
Durbin-Watson	2.159883
R-Square	0.880773
Adj. R-Square	0.854543
Degrees of Freedom	100.
F-Statistic	41.041
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.997471
4-year Net Trend	0.992346
3-year Net Trend	0.992424
2-year Net Trend	0.993339
1-year Net Trend	0.999119

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

CHOSEN K-SQUARE VALUES

PX2R	0.218750

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.323634	0.085699	3.776395
Rho-2	0.290874	0.081260	3.579566

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.100069	-0.102034	0.091287	-1.117726
2	.	-0.175564	-0.197479	0.091670	-2.154241
3	.	0.041290	-0.009187	0.092057	-0.099796
4	.	-0.079036	-0.123673	0.092450	-1.337729
5	.	0.147043	0.130529	0.092848	1.405845
6	.	0.125818	0.138675	0.093250	1.487119
7	.	-0.069979	0.026931	0.093659	0.287545
8	.	-0.124089	-0.103749	0.094072	-1.102864
9	.	-0.248663	-0.319702	0.094491	-3.383406

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.417634	0.103754	-4.025234
SEP16_30	-0.417634	0.103754	-4.025234
OCT	-0.149727	0.077117	-1.941553
NOV_DEC10	0.037223	0.055002	0.676752
DEC11_12	-0.438427	0.125567	-3.491578
DEC13_15	-0.438427	0.125567	-3.491578
DEC16_17	-0.438427	0.125567	-3.491578
DEC18_19	-0.438427	0.125567	-3.491578
DEC20_21	-0.438427	0.125567	-3.491578
DEC22_23	-0.438427	0.125567	-3.491578
DEC24	-0.438427	0.125567	-3.491578
DEC25_JAN1	-0.069571	0.027348	-2.543905
JAN_FEB	-0.069571	0.027348	-2.543905
MARCH	-0.206755	0.081707	-2.530442
APR1_15	0.186943	0.272744	0.685416
APR16_MAY	-0.138816	0.106672	-1.301331
JUNE	-0.328904	0.091780	-3.583614

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	-0.099068	-0.113761	-0.148650	-0.145971
1972	-0.097345	-0.121534	-0.130272	-0.148580
1973	-0.102515	-0.119456	-0.130376	-0.145636
1974	-0.103807	-0.117377	-0.127451	-0.146323
1975	-0.105100	-0.115299	-0.127034	-0.153263
1976	-0.106393	-0.114259	-0.126200	-0.157430
1977	-0.104177	-0.112506	-0.124321	-0.159513
1978	-0.106314	-0.110412	-0.119936	-0.160039
1979	-0.108989	-0.108615	-0.120040	-0.157095
1980	-0.110262	-0.104394	-0.116699	-0.164722
1981	-0.112806	-0.103339	-0.117744	-0.166805
1982	-0.112595	-0.103339	-0.115865	-0.168889
1983	-0.110254	-0.101723	-0.113985	-0.170972
1984	-0.109459	-0.100318	-0.114716	-0.166996
1985	-0.109962	-0.103938	-0.106780	-0.164568
1986	-0.109637	-0.107558	-0.106363	-0.168393
1987	-0.109312	-0.112249	-0.107408	-0.167361
1988	-0.107527	-0.115869	-0.103650	-0.165297
1989	-0.107672	-0.122371	-0.099265	-0.164266
1990	-0.112686	-0.120227	-0.099369	-0.161322
1991	-0.108175	-0.123847	-0.096444	-0.158894
1992	-0.107850	-0.126395	-0.098535	-0.160581
1993	-0.105740	-0.137922	-0.100174	-0.157557
1994	-0.102494	-0.141542	-0.101204	-0.154277
1995	-0.109601	-0.138564	-0.099765	-0.150997
1996	-0.114615	-0.134277	-0.102748	-0.141089
1997	-0.124644	-0.128796	-0.103777	-0.143840
1998	-0.131751	-0.127128	-0.103767	-0.142796
1999	-0.137397	-0.125459	-0.104797	-0.139516
2000	-0.141583	-0.123790	-0.100231	-0.132955
2001	-0.153705	-0.122956	-0.101135	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971			0.049585	0.038544
1972	0.006292	0.005980	0.025934	0.002511
1973	0.029175	-0.040346	-0.022348	-0.013789
1974	-0.012416	0.003882	0.001106	0.017468
1975	-0.026626	0.025453	-0.010381	0.000053
1976	-0.007432	0.006699	0.000399	-0.037865
1977	-0.004365	-0.008328	-0.003339	-0.033566
1978	0.006609	-0.012760	-0.019703	-0.018237
1979	0.039637	0.007025	0.004460	-0.009904
1980	-0.000237	0.022983	-0.023831	-0.012852
1981	0.003122	-0.045064	-0.015012	0.027724
1982	-0.022778	-0.004359	0.004635	0.011073
1983	-0.001043	0.007135	-0.016058	0.005935
1984	-0.026222	0.008922	-0.015591	0.034988
1985	0.020066	-0.017926	-0.021334	0.030393
1986	0.025166	0.035847	-0.002682	-0.030652
1987	-0.010453	-0.000776	0.045305	-0.001794
1988	-0.017505	0.006548	-0.025924	0.011945
1989	0.022387	0.004261	-0.008063	-0.064626
1990	0.018390	0.060184	-0.015236	0.013517
1991	-0.000191	-0.013380	0.028751	0.043706
1992	-0.041591	-0.031549	-0.018493	0.005170
1993	0.023774	-0.020421	0.010139	-0.003608
1994	-0.039896	-0.010643	0.024321	-0.006594
1995	-0.010715	-0.078308	0.074065	0.003203
1996	-0.013402	0.059443	-0.031347	-0.004807
1997	0.037922	0.015874	0.009441	0.007340
1998	-0.001348	-0.002091	0.003798	-0.003800
1999	0.007481	-0.013481	0.021108	-0.005459
2000	-0.019694	0.021590	-0.026989	-0.008751
2001	0.017970	0.001627	-0.020088	

Demand Equation for: Periodical Within County
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-5.341194	0.326761	-16.345873
YD96PERM	0.534621	0.032758	16.320315
NEWRPT	0.357165	0.050500	7.072566
D87	-0.102526	0.049187	-2.084407
TREND	-0.009125	0.001480	-6.165307
PANELCHG	-0.225876	0.051131	-4.417596
PX11	-0.157321	0.082075	-1.916795

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.367525
Mean Sq. Error	0.003435
Standard Error of Model	0.058607
Durbin-Watson	2.146515
R-Square	0.973264
Adj. R-Square	0.969516
Degrees of Freedom	107.
F-Statistic	299.626
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.011152
4-year Net Trend	1.001088
3-year Net Trend	0.995180
2-year Net Trend	1.007696
1-year Net Trend	1.021733

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.645032	0.069035	9.343493

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.076933	-0.077248	0.090909	-0.849724
2	.	-0.054164	-0.060591	0.091287	-0.663745
3	.	0.204718	0.199481	0.091670	2.176078
4	.	-0.004543	0.022188	0.092057	0.241026
5	.	0.016494	0.040139	0.092450	0.434173
6	.	0.140205	0.113734	0.092848	1.224949
7	.	0.044026	0.065691	0.093250	0.704453
8	.	-0.128466	-0.131769	0.093659	-1.406904
9	.	0.067381	0.007879	0.094072	0.083754

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.000000	0.000000	0.000000
SEP16_30	0.053510	0.017911	2.987559
OCT	0.053510	0.017911	2.987559
NOV_DEC10	0.053510	0.017911	2.987559
DEC11_12	-3.487853	0.771752	-4.519396
DEC13_15	1.548718	0.344820	4.491380
DEC16_17	1.548718	0.344820	4.491380
DEC18_19	1.548718	0.344820	4.491380
DEC20_21	-1.048874	0.386981	-2.710402
DEC22_23	-1.048874	0.386981	-2.710402
DEC24	-1.048874	0.386981	-2.710402
DEC25_JAN1	0.618319	0.259868	2.379356
JAN_FEB	0.015555	0.016672	0.932977
MARCH	0.015555	0.016672	0.932977
APR1_15	0.015555	0.016672	0.932977
APR16_MAY	0.062666	0.019414	3.227892
JUNE	0.062666	0.019414	3.227892

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.066977	0.015555	0.055418	0.017483
1972	0.102067	0.015555	0.053606	0.017696
1973	0.048226	0.015555	0.053606	0.017750
1974	0.048838	0.015555	0.053606	0.017750
1975	0.049450	0.015555	0.052882	0.017856
1976	0.050063	0.015555	0.051432	0.018069
1977	0.104714	0.015555	0.050707	0.018175
1978	0.080684	0.015555	0.049620	0.018282
1979	0.046237	0.020191	0.049620	0.018335
1980	0.037272	0.029465	0.048895	0.018442
1981	0.019342	0.048011	0.048170	0.018548
1982	0.029733	0.057284	0.047446	0.018655
1983	0.068214	0.053227	0.046721	0.018761
1984	0.057772	0.040202	0.046358	0.018921
1985	0.036887	0.032989	0.045634	0.018921
1986	0.054112	0.016357	0.044909	0.019027
1987	0.071337	-0.000275	0.044184	0.019134
1988	0.087323	0.003387	0.042734	0.019347
1989	0.091627	0.009609	0.041647	0.019453
1990	0.012930	0.059615	0.041647	0.019506
1991	-0.010432	0.083570	0.041647	0.019506
1992	-0.033795	0.107526	0.040198	0.019719
1993	-0.001824	0.095795	0.039824	0.019322
1994	0.053510	0.074455	0.039110	0.019429
1995	0.053510	0.050988	0.038040	0.019537
1996	0.053510	0.022297	0.038040	0.019906
1997	0.053092	0.023483	0.037326	0.020643
1998	0.052256	0.024076	0.036612	0.021380
1999	0.051420	0.043723	0.035898	0.022118
2000	0.050584	0.077716	0.034114	0.023592
2001	0.048912	0.025559	0.034114	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971		0.043136	-0.032289	0.054751
1972	0.021158	-0.000688	0.005400	-0.021799
1973	0.030981	-0.008185	-0.017693	-0.037304
1974	0.012300	-0.019930	-0.064453	0.043694
1975	-0.007201	-0.013925	-0.036299	-0.000990
1976	-0.049144	0.031217	0.014356	-0.028733
1977	-0.068408	-0.005365	0.032760	-0.027592
1978	-0.000140	-0.048557	-0.029916	-0.093220
1979	-0.006121	-0.040925	-0.045139	-0.060150
1980	0.097772	0.017724	0.009201	0.011953
1981	-0.023571	0.026913	0.040858	-0.053816
1982	-0.022340	0.018480	0.033185	-0.020258
1983	0.021766	0.034388	0.032836	0.026944
1984	0.059707	0.027634	0.043192	0.065356
1985	-0.014575	-0.041419	0.097588	0.027857
1986	0.063008	0.068763	-0.070489	0.019103
1987	0.067881	0.007054	0.023020	-0.019662
1988	-0.012233	0.100580	-0.008318	0.064119
1989	0.036010	0.085911	0.018345	-0.148310
1990	0.147711	-0.065967	-0.039336	0.064498
1991	0.008683	-0.172212	-0.015329	-0.067684
1992	-0.157679	0.118733	-0.028532	0.026192
1993	-0.079372	0.042623	0.056448	0.001128
1994	0.069950	0.009829	-0.070765	-0.042159
1995	-0.069949	-0.119326	-0.004016	0.140029
1996	-0.085544	-0.080698	-0.056032	0.055770
1997	0.046181	0.007719	-0.015654	0.032360
1998	-0.005475	-0.009492	0.041790	-0.024933
1999	-0.015042	0.033243	-0.054911	0.033595
2000	0.010239	-0.080650	0.037517	0.017803
2001	-0.020117	0.012084	0.029003	

Demand Equation for: Per. NP & Class
Sample Period : 1978Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-4.226401	0.309868	-13.639361
YD96PERM	0.536570	0.027694	19.374948
UCAP4	1.306046	0.324094	4.029838
WPIP1	-0.381556	0.515480	-0.740196
TREND	-0.005569	0.000907	-6.139494
PX12_13	-0.091504	0.064695	-1.414397

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.285664
Mean Sq. Error	0.003710
Standard Error of Model	0.060909
Durbin-Watson	2.152280
R-Square	0.888869
Adj. R-Square	0.864334
Degrees of Freedom	77.
F-Statistic	61.588
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.996761
4-year Net Trend	1.001950
3-year Net Trend	1.010265
2-year Net Trend	1.018280
1-year Net Trend	1.013810

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.000000	0.024070

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.393371	0.093513	4.206605
Rho-2	0.485614	0.105137	4.618893
Rho-4	-0.329582	0.090511	-3.641331

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.079654	-0.079920	0.105409	-0.758188
2	.	-0.033060	-0.040944	0.106000	-0.386262
3	.	0.076879	0.071096	0.106600	0.666944
4	.	-0.029801	-0.019960	0.107211	-0.186174
5	.	-0.177536	-0.188015	0.107833	-1.743576
6	.	0.097775	0.065195	0.108465	0.601066
7	.	0.091543	0.115331	0.109109	1.057030
8	.	-0.097871	-0.039256	0.109764	-0.357636
9	.	-0.082299	-0.123968	0.110432	-1.122577

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.000000	0.000000	0.000000
SEP16_30	0.165570	0.018352	9.021909
OCT	0.165570	0.018352	9.021909
NOV_DEC10	0.165570	0.018352	9.021909
DEC11_12	0.165570	0.018352	9.021909
DEC13_15	0.664452	0.289426	2.295756
DEC16_17	0.664452	0.289426	2.295756
DEC18_19	-0.711550	0.359733	-1.977994
DEC20_21	-0.711550	0.359733	-1.977994
DEC22_23	0.497410	0.404974	1.228252
DEC24	0.497410	0.404974	1.228252
DEC25_JAN1	0.138998	0.015105	9.202151
JAN_FEB	0.138998	0.015105	9.202151
MARCH	0.138998	0.015105	9.202151
APR1_15	0.138998	0.015105	9.202151
APR16_MAY	0.138998	0.015105	9.202151
JUNE	0.138998	0.015105	9.202151

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1978	0.171173	0.138998	0.138998	0.049545
1979	0.143809	0.138998	0.138998	0.049391
1980	0.144231	0.138998	0.138998	0.049082
1981	0.173860	0.138998	0.138998	0.048773
1982	0.178241	0.138998	0.138998	0.048464
1983	0.185838	0.138998	0.138998	0.048155
1984	0.169903	0.141799	0.138998	0.047691
1985	0.138033	0.147399	0.138998	0.047691
1986	0.151738	0.143554	0.138998	0.047382
1987	0.165443	0.149154	0.138998	0.047073
1988	0.183045	0.135864	0.138998	0.046456
1989	0.196750	0.117235	0.138998	0.046147
1990	0.188955	0.098345	0.138998	0.045992
1991	0.181160	0.106555	0.138998	0.045992
1992	0.173365	0.124210	0.138998	0.045374
1993	0.165570	0.155623	0.138998	0.043960
1994	0.165570	0.163833	0.138998	0.043647
1995	0.165570	0.150698	0.138998	0.043335
1996	0.165570	0.124013	0.138998	0.044152
1997	0.164277	0.134289	0.138998	0.045788
1998	0.161690	0.153594	0.138998	0.047423
1999	0.159102	0.157906	0.138998	0.049058
2000	0.156515	0.166117	0.138998	0.052329
2001	0.151341	0.126297	0.138998	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1978				
1979	-0.043523	-0.061232	-0.045369	-0.103227
1980	0.099686	0.076916	0.111614	0.064671
1981	0.003520	0.031788	0.049260	0.004754
1982	0.100022	-0.019780	-0.017965	-0.092515
1983	-0.035550	-0.022428	0.093022	-0.100426
1984	0.036386	0.027126	-0.114602	0.018693
1985	-0.028395	-0.135515	0.019753	0.025985
1986	-0.038931	-0.031209	0.034848	-0.013159
1987	-0.048816	-0.009884	0.070927	-0.041190
1988	0.000348	-0.014733	-0.000193	-0.003729
1989	0.004087	0.073038	-0.059516	0.084653
1990	-0.036348	-0.002621	-0.075469	0.084206
1991	-0.036130	-0.157879	0.061617	0.055226
1992	-0.041405	0.154871	0.078272	-0.011606
1993	-0.093959	0.032121	-0.010496	0.065559
1994	0.007272	0.007107	-0.015098	0.010288
1995	0.075829	-0.020619	0.004597	-0.011724
1996	0.057246	0.006020	-0.030534	-0.028251
1997	0.047677	0.030247	-0.046075	-0.046126
1998	0.044618	-0.057258	0.031065	-0.022356
1999	0.008698	-0.030755	-0.029744	0.004989
2000	-0.012966	0.039711	-0.016046	0.029370
2001	-0.038646	-0.024337	0.010638	

Demand Equation for: Parcel Post
Sample Period : 1990Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-7.106157	0.480162	-14.799498
STR96C	0.428355	0.448352	0.955400
MSADJ	0.114831	0.053969	2.127726
D97Q4	0.157871	0.060584	2.605820
D98Q1_2	0.060729	0.044009	1.379915
D_DC	-0.086639	0.043621	-1.986178
PX_PR_PP	0.467400	0.461269	1.013291
PX_UPS_R	0.522610	0.573003	0.912054
lag 1	0.162228	0.737995	0.219823
lag 2	0.004059	0.673965	0.006022
lag 3	0.146527	0.649368	0.225646
lag 4	0.549314	0.478186	1.148745
PX25	-0.864610	0.575661	-1.501942
lag 1	-0.329372	0.499146	-0.659870
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

	PX_UPS_R	PX25	Sum
current	0.522610	-0.864610	
lag 1	0.162228	-0.329372	
lag 2	0.004059	-0.000000	
lag 3	0.146527	0.000000	
lag 4	0.549314	0.000000	
Sum	1.384737	-1.193981	0.190756
T-Statistic on Sum	6.728513	-3.271196	0.441068

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.078361
Mean Sq. Error	0.003014
Standard Error of Model	0.054899
Durbin-Watson	1.963689
R-Square	0.984126
Adj. R-Square	0.971916
Degrees of Freedom	26.
F-Statistic	80.596
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.998635
4-year Net Trend	0.997746
3-year Net Trend	0.994216
2-year Net Trend	0.980989
1-year Net Trend	0.969869

CHOSEN K-SQUARE VALUES

PX_UPS_R	0.018750
PX25	0.000000

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.003111	0.002898	0.147442	0.019658
2	.	-0.116590	-0.120991	0.149071	-0.811631
3	.	-0.044278	-0.045440	0.150756	-0.301416
4	.	-0.206663	-0.235607	0.152499	-1.544978
5	.	0.116506	0.117636	0.154303	0.762368
6	.	-0.105989	-0.180322	0.156174	-1.154627
7	.	-0.048405	-0.036957	0.158114	-0.233734
8	.	-0.089179	-0.192437	0.160128	-1.201770
9	.	-0.130668	-0.130936	0.162221	-0.807143

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.137751	0.631947	0.217979
SEP16_30	0.519643	0.125595	4.137450
OCT	0.519643	0.125595	4.137450
NOV_DEC10	0.519643	0.125595	4.137450
DEC11_12	0.187835	0.490416	0.383012
DEC13_15	0.187835	0.490416	0.383012
DEC16_17	0.187835	0.490416	0.383012
DEC18_19	4.966518	4.023855	1.234269
DEC20_21	4.966518	4.023855	1.234269
DEC22_23	4.966518	4.023855	1.234269
DEC24	4.966518	4.023855	1.234269
DEC25_JAN1	-1.593282	4.318901	-0.368909
JAN_FEB	0.096852	0.167783	0.577247
MARCH	0.096852	0.167783	0.577247
APR1_15	0.360020	0.228286	1.577055
APR16_MAY	0.360020	0.228286	1.577055
JUNE	0.360020	0.228286	1.577055

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1990	0.493721	0.397212	0.291191	0.141221
1991	0.498905	0.398634	0.291191	0.140421
1992	0.504090	0.400056	0.283094	0.138310
1993	0.514459	0.402899	0.280272	0.133824
1994	0.519643	0.417525	0.276285	0.131946
1995	0.519643	0.434032	0.272297	0.130068
1996	0.519643	0.407623	0.270303	0.129755
1997	0.516660	0.420836	0.266316	0.133990
1998	0.510692	0.427442	0.262329	0.136605
1999	0.504725	0.434048	0.258341	0.139220
2000	0.498758	0.453858	0.250367	0.144450
2001	0.486824	0.443957	0.248373	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1990	0.043645	0.020470	-0.001947	-0.023517
1991	-0.013724	0.057210	-0.056545	-0.003434
1992	-0.005700	-0.075490	0.112083	-0.053052
1993	-0.048711	-0.007202	0.050489	0.098696
1994	0.020023	0.000954	-0.037082	-0.057677
1995	-0.058114	0.009423	-0.022506	-0.007028
1996	-0.002822	-0.006742	-0.012976	0.015441
1997	0.004672	0.013650	-0.060617	
1998	0.022692	-0.022692	0.013262	0.042558
1999	0.066771	-0.005812	-0.017301	0.035334
2000	0.039440	-0.019801	0.010401	-0.048260
2001	-0.065775	0.036030	0.021281	

Demand Equation for: Bound Printed Matter
Sample Period : 1979Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-7.883829	0.520007	-15.161005
C96C	0.743227	0.118440	6.275132
SEARS	-0.189826	0.048058	-3.949940
D98Q1	-0.129494	0.039814	-3.252469
PX28	-0.000504	0.441837	-0.001142
lag 1	-0.105098	0.635114	-0.165480
lag 2	-0.125571	0.378045	-0.332158
lag 3	0.000000	0.000000	0.000000
lag 4	0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX28
current	-0.000504
lag 1	-0.105098
lag 2	-0.125571
lag 3	0.000000
lag 4	0.000000
Sum	-0.231174

T-Statistic on Sum
-1.931209

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.596706
Mean Sq. Error	0.008524
Standard Error of Model	0.092328
Durbin-Watson	2.156405
R-Square	0.980022
Adj. R-Square	0.974314
Degrees of Freedom	70.
F-Statistic	201.991
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.994199
4-year Net Trend	1.003518
3-year Net Trend	1.005183
2-year Net Trend	1.024913
1-year Net Trend	1.047105

Z-Variable Parameters

	Z-Parameters	Std. Error	T-Ratio
Parameter 1	1.677789	0.189587	8.849686
Parameter 2	3.309102	0.898503	3.682905
Parameter 3	0.052760	0.006767	7.796142

CHOSEN K-SQUARE VALUES

PX28	0.190625

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.089407	-0.090546	0.105409	-0.858991
2	.	-0.060233	-0.069600	0.106000	-0.656601
3	.	-0.077285	-0.092943	0.106600	-0.871882
4	.	-0.178952	-0.209939	0.107211	-1.958179
5	.	0.234162	0.208956	0.107833	1.937775
6	.	-0.207074	-0.245470	0.108465	-2.263119
7	.	-0.023811	-0.048590	0.109109	-0.445337
8	.	-0.192489	-0.280651	0.109764	-2.556848
9	.	0.045231	0.060732	0.110432	0.549954

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.819670	1.109253	-1.640447
SEP16_30	2.001293	0.742444	2.695548
OCT	-2.303948	0.448313	-5.139151
NOV_DEC10	-0.535723	0.580332	-0.923132
DEC11_12	-0.535723	0.580332	-0.923132
DEC13_15	-0.535723	0.580332	-0.923132
DEC16_17	1.926885	1.242398	1.550940
DEC18_19	1.926885	1.242398	1.550940
DEC20_21	0.460584	0.914958	0.503394
DEC22_23	0.460584	0.914958	0.503394
DEC24	0.460584	0.914958	0.503394
DEC25_JAN1	-1.167684	0.238851	-4.888755
JAN_FEB	-1.167684	0.238851	-4.888755
MARCH	0.669074	0.635388	1.053016
APR1_15	-5.521662	1.574777	-3.506314
APR16_MAY	-0.482702	0.648713	-0.744091
JUNE	-1.793781	0.739714	-2.424966

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1979	-0.956049	-0.644915	-1.548699	-0.340006
1980	-0.954540	-0.701430	-1.500724	-0.294593
1981	-0.951523	-0.715559	-1.483004	-0.288660
1982	-0.967163	-0.715559	-1.445114	-0.282728
1983	-0.983333	-0.737194	-1.407224	-0.276796
1984	-1.026528	-0.781872	-1.262781	-0.332410
1985	-1.060046	-0.785129	-1.320133	-0.321830
1986	-0.997494	-0.788387	-1.292328	-0.387118
1987	-0.973421	-0.777295	-1.274609	-0.431247
1988	-0.958444	-0.769097	-1.198829	-0.519504
1989	-0.928490	-0.736723	-1.199700	-0.563633
1990	-0.960962	-0.742512	-1.131908	-0.575118
1991	-0.988591	-0.742097	-1.111738	-0.564539
1992	-0.948950	-0.736794	-1.076299	-0.666333
1993	-0.855854	-0.728500	-1.049854	-0.697716
1994	-0.788584	-0.770236	-1.032402	-0.726940
1995	-0.748944	-0.801782	-1.053125	-0.756163
1996	-0.742937	-0.874748	-1.006226	-0.703754
1997	-0.760776	-0.825981	-0.988775	-0.717145
1998	-0.780838	-0.816107	-0.985238	-0.716841
1999	-0.787085	-0.817688	-0.967787	-0.701112
2000	-0.779519	-0.830724	-1.026718	-0.669654
2001	-0.853277	-0.849138	-1.007648	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1979	0.098155	-0.083614	0.045852	0.037153
1980	-0.191406	0.051303	-0.150481	0.022065
1981	0.027510	-0.037563	-0.027082	-0.221626
1982	0.315463	0.100970	0.095705	0.028419
1983	-0.071389	0.035673	-0.062509	0.005613
1984	-0.121486	-0.085991	0.167007	0.073992
1985	-0.117387	0.006981	-0.130750	0.035955
1986	0.053119	0.014407	0.050634	0.054502
1987	-0.053699	-0.036837	-0.006637	-0.050368
1988	0.055847	0.053134	0.012538	0.054061
1989	-0.016478	0.079957	0.080270	-0.074384
1990	-0.063625	0.006361	-0.003205	0.042889
1991	0.038910	-0.079915	-0.065799	0.016526
1992	0.110282	0.001613	0.000883	0.007572
1993	-0.065173	0.006919	0.018719	-0.002541
1994	-0.023097	-0.125248	0.076039	-0.048096
1995	-0.122552	-0.042091	0.039398	0.080010
1996	0.033700	0.083113	0.001560	0.047426
1997	0.151668	-0.170946	-0.045374	-0.022523
1998	0.042501	0.102871	-0.088930	0.003829
1999	-0.043148	0.009452	-0.090302	-0.082240
2000	-0.058962	0.055385	0.029112	-0.011550
2001	0.013161	0.057687	0.061133	

Demand Equation for: Media Mail (incl. Library)
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-5.608231	0.108977	-51.462522
STR96C1	0.902205	0.256292	3.520223
D98Q1	-0.120258	0.043949	-2.736316
DVOL29	-0.331448	0.057161	-5.798498
PX29_30	-0.000070	0.334575	-0.000209
lag 1	-0.040199	0.469155	-0.085685
lag 2	-0.061142	0.489632	-0.124873
lag 3	-0.042952	0.314658	-0.136503
lag 4	-0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX29_30
current	-0.000070
lag 1	-0.040199
lag 2	-0.061142
lag 3	-0.042952
lag 4	-0.000000
Sum	-0.144363

T-Statistic on Sum
-0.889454

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.220766
Mean Sq. Error	0.005519
Standard Error of Model	0.074291
Durbin-Watson	1.579975
R-Square	0.754118
Adj. R-Square	0.668059
Degrees of Freedom	40.
F-Statistic	8.763
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.995023
4-year Net Trend	1.004463
3-year Net Trend	1.001014
2-year Net Trend	0.986878
1-year Net Trend	1.023848

CHOSEN K-SQUARE VALUES

PX29_30	0.667188

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.170259	0.176816	0.136083	1.299327
2	.	-0.040470	-0.083429	0.137361	-0.607371
3	.	0.104480	0.142647	0.138675	1.028644
4	.	0.118514	0.079963	0.140028	0.571048
5	.	0.160657	0.157710	0.141421	1.115176
6	.	-0.035460	-0.125046	0.142857	-0.875319
7	.	-0.142982	-0.173599	0.144338	-1.202730
8	.	-0.251401	-0.392145	0.145865	-2.688407
9	.	0.077139	0.196937	0.147442	1.335693

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.610986	0.735758	0.830417
SEP16_30	-0.748395	0.554986	-1.348494
OCT	0.501826	0.153208	3.275456
NOV_DEC10	0.501826	0.153208	3.275456
DEC11_12	0.501826	0.153208	3.275456
DEC13_15	-0.844343	0.765518	-1.102970
DEC16_17	-0.844343	0.765518	-1.102970
DEC18_19	-0.844343	0.765518	-1.102970
DEC20_21	7.620862	2.647547	2.878462
DEC22_23	7.620862	2.647547	2.878462
DEC24	7.620862	2.647547	2.878462
DEC25_JAN1	7.620862	2.647547	2.878462
JAN_FEB	-1.107622	0.460849	-2.403437
MARCH	0.534893	0.252283	2.120210
APR1_15	0.000000	0.000000	0.000000
APR16_MAY	0.000000	0.000000	0.000000
JUNE	-0.000000	0.000000	0.000000

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.328285	0.297498	0.127551	0.021585
1989	0.310250	0.207756	0.135781	0.030287
1990	0.321516	0.186205	0.139895	0.031086
1991	0.342550	0.164655	0.139895	0.027534
1992	0.344049	0.130272	0.156353	0.052043
1993	0.326014	0.215151	0.162089	0.061459
1994	0.306479	0.257678	0.170193	0.070264
1995	0.286944	0.120779	0.178298	0.079069
1996	0.277177	0.094598	0.182350	0.068287
1997	0.268262	0.119229	0.190454	0.068287
1998	0.269968	0.144376	0.186115	0.061099
1999	0.271674	0.225141	0.194220	0.053911
2000	0.273379	0.293333	0.160656	0.039534
2001	0.286558	0.207245	0.139821	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.066570	0.080868	-0.002311	0.067070
1989	-0.123223	-0.128381	0.015499	0.031779
1990	-0.106939	-0.100542	-0.060795	-0.056664
1991	0.018639	-0.059177	-0.035001	-0.115551
1992	0.112890	0.127726	-0.081809	-0.022126
1993	-0.010266	0.034740	0.005336	-0.063478
1994	-0.023136	0.044051	0.056599	0.045768
1995	0.080105	0.065740	0.091660	0.085457
1996	-0.011948	0.056310	-0.029311	-0.043174
1997	0.015810	-0.025160	-0.010395	0.006770
1998	0.048316	-0.053252	-0.016639	0.095129
1999	-0.010348	0.057156	-0.038113	-0.013137
2000	-0.020763	-0.027531	-0.025085	0.004269
2001	-0.029135	-0.085410	0.114545	

Demand Equation for: Mailgrams
Sample Period : 1975Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-5.537059	0.391015	-14.160732
TREND	-0.034657	0.004411	-7.856838

REGRESSION DIAGNOSTICS

Sum of Square Resids	4.073963
Mean Sq. Error	0.043340
Standard Error of Model	0.208183
Durbin-Watson	2.197658
R-Square	0.962084
Adj. R-Square	0.957244
Degrees of Freedom	94.
F-Statistic	298.148
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.125854
4-year Net Trend	1.030442
3-year Net Trend	1.074188
2-year Net Trend	1.030596
1-year Net Trend	1.164934

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.594425	0.094860	6.266325
Rho-2	0.256433	0.090585	2.830847

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.101068	-0.101317	0.098058	-1.033230
2	.	-0.322151	-0.338577	0.098533	-3.436181
3	.	0.166226	0.098551	0.099015	0.995312
4	.	0.161453	0.101437	0.099504	1.019427
5	.	-0.333258	-0.257317	0.100000	-2.573175
6	.	0.080329	0.101994	0.100504	1.014830
7	.	0.259511	0.109863	0.101015	1.087584
8	.	0.055675	0.238243	0.101535	2.346422
9	.	-0.074664	0.130886	0.102062	1.282412

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.000000	0.000000	0.000000
SEP16_30	0.617108	0.517779	1.191837
OCT	-1.089948	0.385738	-2.825619
NOV_DEC10	0.574309	0.276268	2.078810
DEC11_12	0.574309	0.276268	2.078810
DEC13_15	0.574309	0.276268	2.078810
DEC16_17	0.574309	0.276268	2.078810
DEC18_19	0.574309	0.276268	2.078810
DEC20_21	0.574309	0.276268	2.078810
DEC22_23	0.574309	0.276268	2.078810
DEC24	0.005856	0.130013	0.045038
DEC25_JAN1	0.005856	0.130013	0.045038
JAN_FEB	0.005856	0.130013	0.045038
MARCH	0.005856	0.130013	0.045038
APR1_15	-1.260137	1.798974	-0.700476
APR16_MAY	0.588634	0.633649	0.928959
JUNE	-0.434289	0.445781	-0.974219

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1975	0.089480	0.005856	-0.017923	-0.056968
1976	0.071806	0.005856	-0.020117	-0.041720
1977	0.076155	0.005856	-0.013346	-0.034097
1978	0.058622	0.005856	-0.020796	-0.036397
1979	0.036298	0.005856	0.004680	-0.042510
1980	0.009881	0.005856	0.019320	-0.015037
1981	-0.024907	0.005856	0.010354	-0.007413
1982	-0.029092	0.005856	0.017126	0.000211
1983	-0.019664	0.005856	0.023897	0.007835
1984	-0.036786	0.005856	0.070366	-0.010503
1985	-0.075457	0.010297	0.057660	-0.010503
1986	-0.074789	0.019179	0.056563	-0.022729
1987	-0.074120	0.028061	0.047597	-0.034954
1988	-0.060449	0.036943	0.061140	-0.059405
1989	-0.033108	0.054707	0.053690	-0.071631
1990	-0.045775	0.059148	0.079166	-0.077744
1991	-0.071779	0.059148	0.094903	-0.077744
1992	-0.071110	0.068030	0.076972	-0.096247
1993	-0.056771	0.085794	0.075894	-0.104640
1994	-0.030098	0.094676	0.067064	-0.104975
1995	-0.029429	0.103558	0.044228	-0.105310
1996	-0.042097	0.107999	0.053819	-0.083796
1997	-0.072254	0.116882	0.044989	-0.082888
1998	-0.081227	0.125764	0.036159	-0.087997
1999	-0.077199	0.134646	0.027329	-0.081072
2000	-0.060168	0.143528	-0.004337	-0.067222
2001	-0.091452	0.156851	0.005254	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1975			-0.115777	-0.121265
1976	-0.161958	-0.119760	0.018692	-0.032852
1977	-0.152812	-0.029882	-0.021808	-0.057142
1978	-0.114398	0.020271	0.089774	0.003557
1979	-0.053386	0.019502	0.117271	0.066094
1980	-0.030597	0.032830	0.053274	-0.011763
1981	0.091185	0.040273	0.096039	0.115737
1982	0.083547	0.033833	0.026873	0.049539
1983	0.154338	-0.076171	-0.059399	0.007141
1984	0.202376	0.006982	0.007718	0.076007
1985	0.146483	-0.067265	0.035142	0.020700
1986	0.130920	0.005532	0.029098	-0.009504
1987	0.090814	-0.187118	0.102093	0.131508
1988	0.210896	-0.181087	-0.039220	0.060159
1989	0.024555	0.040733	0.068380	0.011884
1990	-0.005087	-0.082638	-0.022101	0.161384
1991	0.011996	-0.104150	-0.003999	0.127672
1992	-1.071438	0.283632	0.411010	-0.049177
1993	-0.016661	0.206260	-0.300963	-0.485128
1994	0.005884	0.245802	-0.426630	0.043764
1995	-0.155196	0.064431	0.015950	-0.446273
1996	-0.316168	0.516907	0.102877	-0.067196
1997	0.373923	0.287444	-0.494453	-0.014446
1998	0.128433	-0.094744	-0.028536	0.134436
1999	0.234491	-0.218219	0.099584	0.054013
2000	-0.029633	-0.384446	0.236102	0.199082
2001	0.166669	-0.103468	-0.069581	

Demand Equation for: Postal Penalty Mail
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-3.153838	0.290111	-10.871144
TREND	-0.015140	0.002700	-5.607579
T97	0.003508	0.006180	0.567659

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.642954
Mean Sq. Error	0.014288
Standard Error of Model	0.119532
Durbin-Watson	1.666948
R-Square	0.832224
Adj. R-Square	0.798669
Degrees of Freedom	45.
F-Statistic	37.202
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.058860
4-year Net Trend	1.059076
3-year Net Trend	1.042942
2-year Net Trend	1.041435
1-year Net Trend	1.139427

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.000000	0.000000	0.000000
Rho-2	0.500950	0.105109	4.766011

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.138534	0.142158	0.138675	1.025118
2	.	0.000803	-0.017707	0.140028	-0.126452
3	.	-0.231843	-0.257064	0.141421	-1.817714
4	.	0.114367	0.226342	0.142857	1.584397
5	.	0.291320	0.314627	0.144338	2.179798
6	.	0.112712	-0.060183	0.145865	-0.412591
7	.	-0.129832	-0.144848	0.147442	-0.982405
8	.	-0.267284	-0.169713	0.149071	-1.138468
9	.	0.024737	0.031799	0.150756	0.210931

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.167488	0.476176	-2.451799
SEP16_30	-1.167488	0.476176	-2.451799
OCT	0.303475	0.116512	2.604663
NOV_DEC10	0.303475	0.116512	2.604663
DEC11_12	0.303475	0.116512	2.604663
DEC13_15	0.303475	0.116512	2.604663
DEC16_17	-0.799983	0.305343	-2.619950
DEC18_19	-0.799983	0.305343	-2.619950
DEC20_21	-0.799983	0.305343	-2.619950
DEC22_23	-0.799983	0.305343	-2.619950
DEC24	-0.799983	0.305343	-2.619950
DEC25_JAN1	-0.799983	0.305343	-2.619950
JAN_FEB	-0.041426	0.144256	-0.287171
MARCH	-0.041426	0.144256	-0.287171
APR1_15	-0.041426	0.144256	-0.287171
APR16_MAY	-0.041426	0.144256	-0.287171
JUNE	-0.041426	0.144256	-0.287171

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.171307	-0.148098	-0.041426	-0.247686
1989	0.159822	-0.154024	-0.041426	-0.234592
1990	0.165572	-0.165877	-0.041426	-0.221258
1991	0.165572	-0.169109	-0.041426	-0.214470
1992	0.142588	-0.180961	-0.041426	-0.201858
1993	0.096620	-0.170183	-0.041426	-0.190497
1994	0.073637	-0.158868	-0.041426	-0.177250
1995	0.050653	-0.141626	-0.041426	-0.164002
1996	0.039161	-0.136237	-0.041426	-0.143643
1997	0.016177	-0.151321	-0.041426	-0.144130
1998	-0.006807	-0.145932	-0.041426	-0.130882
1999	-0.029790	-0.140543	-0.041426	-0.117635
2000	-0.052774	-0.129228	-0.041426	-0.091139
2001	-0.087250	-0.106597	-0.041426	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988			0.090040	0.165978
1989	-0.189658	-0.079768	-0.121357	0.028830
1990	0.047669	0.030716	-0.209298	0.004777
1991	0.138315	0.256541	-0.038408	0.050492
1992	0.064614	-0.043780	0.102585	-0.013930
1993	-0.046091	0.158534	0.134706	0.073933
1994	-0.044793	-0.213462	0.105925	-0.040407
1995	0.169803	-0.209260	-0.130333	-0.202483
1996	-0.052503	0.029809	-0.185078	-0.138858
1997	-0.129945	0.118493	0.046087	-0.009507
1998	-0.057981	-0.001440	0.035570	-0.012184
1999	0.069140	-0.001686	0.000542	-0.000728
2000	-0.064331	-0.071066	0.013114	0.095745
2001	0.089333	0.020049	0.166996	

Demand Equation for: Free-for-the-Blind
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-7.374419	0.544118	-13.552977
TREND	0.006591	0.000757	8.706101

REGRESSION DIAGNOSTICS

Sum of Square Resids	9.907307
Mean Sq. Error	0.086906
Standard Error of Model	0.294799
Durbin-Watson	1.747299
R-Square	0.427324
Adj. R-Square	0.387136
Degrees of Freedom	114.
F-Statistic	10.633
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.947237
4-year Net Trend	0.921927
3-year Net Trend	0.899270
2-year Net Trend	0.873671
1-year Net Trend	0.855135

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.123055	0.123485	0.090536	1.363932
2	.	0.119812	0.107642	0.090909	1.184067
3	.	0.095565	0.073269	0.091287	0.802617
4	.	-0.090978	-0.125310	0.091670	-1.366972
5	.	0.196876	0.214920	0.092057	2.334632
6	.	0.144230	0.132331	0.092450	1.431383
7	.	-0.057978	-0.125599	0.092848	-1.352738
8	.	0.055112	-0.003983	0.093250	-0.042708
9	.	0.099138	0.169189	0.093659	1.806439

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.542366	3.160920	-0.487948
SEP16_30	0.022093	0.557482	0.039629
OCT	0.022093	0.557482	0.039629
NOV_DEC10	-0.315959	0.772424	-0.409048
DEC11_12	-2.094103	1.178202	-1.777371
DEC13_15	-2.094103	1.178202	-1.777371
DEC16_17	-2.094103	1.178202	-1.777371
DEC18_19	-2.094103	1.178202	-1.777371
DEC20_21	-2.094103	1.178202	-1.777371
DEC22_23	1.644206	3.031221	0.542424
DEC24	1.644206	3.031221	0.542424
DEC25_JAN1	0.631721	1.630894	0.387347
JAN_FEB	-0.270726	0.547864	-0.494148
MARCH	-0.270726	0.547864	-0.494148
APR1_15	-0.270726	0.547864	-0.494148
APR16_MAY	-0.270726	0.547864	-0.494148
JUNE	-0.270726	0.547864	-0.494148

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	-0.315051	-0.270726	-0.270726	-0.202132
1972	-0.323058	-0.270726	-0.270726	-0.208942
1973	-0.395683	-0.270726	-0.270726	-0.201677
1974	-0.390960	-0.270726	-0.270726	-0.192710
1975	-0.356090	-0.270726	-0.270726	-0.214049
1976	-0.291072	-0.270726	-0.270726	-0.220859
1977	-0.296872	-0.270726	-0.270726	-0.224264
1978	-0.328951	-0.270726	-0.270726	-0.227668
1979	-0.375299	-0.263784	-0.270726	-0.220404
1980	-0.384975	-0.249900	-0.270726	-0.232776
1981	-0.315321	-0.222132	-0.270726	-0.236181
1982	-0.327681	-0.208249	-0.270726	-0.239585
1983	-0.327498	-0.214323	-0.270726	-0.242990
1984	-0.366735	-0.206413	-0.270726	-0.239130
1985	-0.445209	-0.162391	-0.270726	-0.230163
1986	-0.412144	-0.161676	-0.270726	-0.251502
1987	-0.379078	-0.131755	-0.270726	-0.254907
1988	-0.348654	-0.160245	-0.270726	-0.261717
1989	-0.301697	-0.246287	-0.270726	-0.265122
1990	-0.296415	-0.290597	-0.270726	-0.257857
1991	-0.263349	-0.319088	-0.270726	-0.248890
1992	-0.230283	-0.318372	-0.270726	-0.273634
1993	-0.166793	-0.316942	-0.270726	-0.277113
1994	-0.139010	-0.352482	-0.270726	-0.280558
1995	-0.133728	-0.389092	-0.270726	-0.284003
1996	-0.128446	-0.433402	-0.270726	-0.258377
1997	-0.130104	-0.405610	-0.270726	-0.261562
1998	-0.149267	-0.347906	-0.270726	-0.246602
1999	-0.171070	-0.348613	-0.270726	-0.231641
2000	-0.195515	-0.356370	-0.270726	-0.201720
2001	-0.233840	-0.437289	-0.270726	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.097931	-0.020927	-0.341493	-0.319753
1972	-0.435995	0.289564	0.227286	0.185537
1973	-0.177528	0.056653	-0.580671	-0.037000
1974	0.218981	-0.664562	-0.082998	-0.093216
1975	-0.167326	0.344309	-0.225502	-0.532407
1976	0.278395	-0.180518	-0.013051	-0.336546
1977	-0.578397	-0.022939	0.421480	0.278422
1978	-0.241844	-0.473203	0.316659	-0.006483
1979	0.363080	-0.029807	0.156752	0.285636
1980	0.216225	0.145219	-0.045050	-0.063482
1981	-0.084837	0.970775	0.192640	0.745022
1982	0.370733	-0.244929	-0.023210	0.158741
1983	0.128714	0.379073	0.151054	0.376052
1984	0.464339	-0.008660	0.001183	-0.198695
1985	-0.016913	-0.169641	-0.145654	-0.164992
1986	-0.133874	0.238761	-0.390782	0.308829
1987	-0.406230	-0.259207	0.714959	0.209326
1988	0.424181	0.100916	0.171714	-0.517348
1989	-0.063854	-0.226876	-0.335824	-0.499918
1990	0.057405	-0.289625	0.041738	-0.103207
1991	-0.267002	0.120184	-0.127689	-0.156202
1992	-0.083157	-0.153044	0.619975	-0.095331
1993	-0.182860	0.154811	-0.165570	0.590671
1994	0.352460	0.064000	0.131591	-0.037474
1995	0.040463	0.421628	-0.182928	0.067520
1996	0.190263	-0.284961	-0.085271	0.169109
1997	-0.042579	0.044214	0.041362	0.165017
1998	0.034017	0.020979	-0.043984	0.027135
1999	-0.085660	0.152745	-0.069103	-0.073505
2000	-0.057610	-0.109238	-0.205236	-0.332546
2001	-0.205652	-0.258821	-0.236020	

Demand Equation for: Registry
Sample Period : 1984Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-5.907121	0.538463	-10.970339
BGVOL1_3	0.819739	0.440245	1.862007
TREND	-0.025999	0.001342	-19.373676
TMC96_3	0.006858	0.006034	1.136571
GDIST	0.153290	0.045849	3.343373
MC96_3	-0.051601	0.045024	-1.146069
PX35	-0.133010	0.193938	-0.685839

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.209130
Mean Sq. Error	0.003946
Standard Error of Model	0.062816
Durbin-Watson	2.189881
R-Square	0.985181
Adj. R-Square	0.980428
Degrees of Freedom	53.
F-Statistic	207.266
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.008092
4-year Net Trend	0.997293
3-year Net Trend	0.996659
2-year Net Trend	1.016771
1-year Net Trend	1.014929

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.098528	-0.098843	0.119523	-0.826982
2	.	-0.111946	-0.124298	0.120386	-1.032500
3	.	-0.035377	-0.060967	0.121268	-0.502745
4	.	-0.257848	-0.295093	0.122169	-2.415440
5	.	-0.003602	-0.093626	0.123091	-0.760620
6	.	0.185646	0.110608	0.124035	0.891748
7	.	0.039837	0.036564	0.125000	0.292511
8	.	-0.161944	-0.228689	0.125988	-1.815160
9	.	0.104690	0.073151	0.127000	0.575995

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	1.170093	0.936508	1.249421
SEP16_30	0.667105	0.733062	0.910025
OCT	-0.066127	0.468665	-0.141096
NOV_DEC10	0.311669	0.666210	0.467824
DEC11_12	1.335466	0.891701	1.497661
DEC13_15	1.335466	0.891701	1.497661
DEC16_17	1.335466	0.891701	1.497661
DEC18_19	-1.087155	0.997008	-1.090417
DEC20_21	-1.087155	0.997008	-1.090417
DEC22_23	1.382915	1.068170	1.294659
DEC24	1.382915	1.068170	1.294659
DEC25_JAN1	1.382915	1.068170	1.294659
JAN_FEB	0.001402	0.260626	0.005380
MARCH	0.230625	0.767174	0.300616
APR1_15	0.067977	1.618241	0.042007
APR16_MAY	0.419099	0.695380	0.602691
JUNE	0.419099	0.695380	0.602691

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1984	0.228836	0.134308	0.326333	0.307154
1985	0.167425	0.173898	0.320931	0.300351
1986	0.194836	0.172605	0.318032	0.311073
1987	0.222246	0.192401	0.315132	0.308190
1988	0.252608	0.171810	0.309333	0.302422
1989	0.283476	0.120759	0.303732	0.299538
1990	0.283302	0.100169	0.304983	0.291293
1991	0.261402	0.117432	0.304983	0.284491
1992	0.250959	0.152202	0.299184	0.292329
1993	0.233024	0.232486	0.298145	0.287920
1994	0.228484	0.238956	0.295290	0.285002
1995	0.234038	0.207708	0.289774	0.282084
1996	0.233863	0.183536	0.291006	0.263901
1997	0.237443	0.208948	0.288151	0.268831
1998	0.250856	0.252390	0.283558	0.259996
1999	0.267220	0.257238	0.280703	0.251161
2000	0.286536	0.251293	0.265385	0.233490
2001	0.307634	0.206618	0.263144	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1984	-0.019544	-0.029698	0.029641	0.005389
1985	-0.022034	-0.056850	-0.039648	-0.040714
1986	0.032879	0.030822	-0.033700	-0.007113
1987	-0.023691	0.120887	0.074912	-0.021537
1988	0.019534	-0.041714	-0.021330	0.032090
1989	-0.012582	-0.000754	-0.066849	0.050691
1990	0.086537	-0.021838	0.008523	0.083712
1991	0.000889	0.008945	0.030981	0.001250
1992	-0.066728	0.041005	-0.021865	-0.072019
1993	0.044208	-0.050831	0.000500	-0.059183
1994	0.009693	-0.031056	0.019492	0.024810
1995	0.087692	-0.018218	0.043583	-0.020945
1996	-0.230656	0.082068	0.020639	0.106103
1997	0.044172	-0.034457	-0.074586	-0.008632
1998	0.017086	-0.027092	0.098783	-0.056733
1999	0.026897	0.021622	-0.087386	-0.052710
2000	0.063930	-0.017497	-0.010567	0.033572
2001	-0.056752	0.020532	0.033444	

Demand Equation for: Insurance
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-4.952819	2.363838	-2.095245
YD96PERM	0.354938	0.739359	0.480062
MSADJ	-0.158814	0.051132	-3.105971
TREND	-0.013064	0.002888	-4.523525
BGVOL25	0.371014	0.039457	9.402988
D97Q4	0.107028	0.085431	1.252802
PX36	-0.000007	0.173509	-0.000041
lag 1	-0.029132	0.308710	-0.094366
lag 2	-0.045560	0.308611	-0.147630
lag 3	-0.035700	0.175456	-0.203469
lag 4	0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX36
current	-0.000007
lag 1	-0.029132
lag 2	-0.045560
lag 3	-0.035700
lag 4	0.000000
Sum	-0.110399

T-Statistic on Sum
-1.886677

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.644095
Mean Sq. Error	0.006441
Standard Error of Model	0.080256
Durbin-Watson	1.542264
R-Square	0.984380
Adj. R-Square	0.980944
Degrees of Freedom	100.
F-Statistic	331.687
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.007376
4-year Net Trend	0.982164
3-year Net Trend	0.991522
2-year Net Trend	0.995848
1-year Net Trend	0.998077

Z-Variable Parameters

	Z-Parameters	Std. Error	T-Ratio
Parameter 1	0.921087	0.096318	9.563010
Parameter 2	5.025506	1.569962	3.201037
Parameter 3	0.319200	0.075404	4.233197

CHOSEN K-SQUARE VALUES

PX36	6.482813

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.221022	0.222773	0.090536	2.460606
2	.	0.144443	0.099571	0.090909	1.095276
3	.	0.097588	0.047952	0.091287	0.525292
4	.	0.073537	0.033685	0.091670	0.367456
5	.	0.047637	0.011389	0.092057	0.123715
6	.	0.108320	0.088497	0.092450	0.957240
7	.	-0.035191	-0.091742	0.092848	-0.988089
8	.	-0.074330	-0.084752	0.093250	-0.908866
9	.	0.076592	0.129088	0.093659	1.378281

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.945978	0.346342	-2.731340
SEP16_30	-0.945978	0.346342	-2.731340
OCT	-0.455375	0.231171	-1.969864
NOV_DEC10	0.427577	0.188006	2.274271
DEC11_12	0.427577	0.188006	2.274271
DEC13_15	0.427577	0.188006	2.274271
DEC16_17	1.693831	0.805078	2.103933
DEC18_19	1.693831	0.805078	2.103933
DEC20_21	-1.711174	0.694556	-2.463694
DEC22_23	-1.711174	0.694556	-2.463694
DEC24	-1.711174	0.694556	-2.463694
DEC25_JAN1	-0.145511	0.094481	-1.540111
JAN_FEB	-0.145511	0.094481	-1.540111
MARCH	-0.670477	0.254878	-2.630580
APR1_15	0.270400	0.943889	0.286475
APR16_MAY	-0.286165	0.367333	-0.779035
JUNE	-0.527930	0.286521	-1.842552

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.104868	-0.331759	-0.276789	-0.338020
1972	0.059192	-0.344362	-0.247943	-0.336855
1973	0.087075	-0.336408	-0.251461	-0.328925
1974	0.092289	-0.328454	-0.247742	-0.329130
1975	0.107715	-0.320500	-0.251795	-0.340973
1976	0.102717	-0.316523	-0.259900	-0.342660
1977	0.030286	-0.309814	-0.262093	-0.343504
1978	0.037854	-0.301799	-0.260005	-0.341495
1979	0.056332	-0.294925	-0.263523	-0.333565
1980	0.061463	-0.278772	-0.263856	-0.345613
1981	0.071725	-0.274734	-0.269769	-0.346457
1982	0.046790	-0.274734	-0.271962	-0.347301
1983	-0.000463	-0.268550	-0.274155	-0.348144
1984	0.019159	-0.264377	-0.284147	-0.335353
1985	0.064462	-0.280638	-0.271865	-0.329853
1986	0.096204	-0.296898	-0.275918	-0.335992
1987	0.108160	-0.317261	-0.281831	-0.331131
1988	0.073811	-0.306920	-0.286217	-0.321409
1989	0.005113	-0.282209	-0.284128	-0.316548
1990	-0.032301	-0.220804	-0.287647	-0.308617
1991	-0.046097	-0.193754	-0.283927	-0.303117
1992	-0.067559	-0.152710	-0.295752	-0.302989
1993	-0.103585	-0.161403	-0.301430	-0.295425
1994	-0.111250	-0.197449	-0.307253	-0.287662
1995	-0.132712	-0.168060	-0.308859	-0.279900
1996	-0.150341	-0.118237	-0.315987	-0.260623
1997	-0.185599	-0.062448	-0.321810	-0.265412
1998	-0.207061	-0.053493	-0.323656	-0.260494
1999	-0.221624	-0.071140	-0.329479	-0.252731
2000	-0.229290	-0.115389	-0.321000	-0.237206
2001	-0.268381	-0.060785	-0.320174	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	-0.099567	0.032678	0.044415	-0.054102
1972	0.040276	-0.006910	-0.099091	-0.014508
1973	-0.076799	-0.108051	-0.051032	-0.040532
1974	-0.140191	0.034990	0.004246	0.031482
1975	0.031406	0.036191	-0.022150	0.039950
1976	-0.028176	0.055767	0.025315	0.174069
1977	0.100903	0.176311	0.035287	-0.000169
1978	0.130247	0.052984	0.219572	-0.045050
1979	0.018019	-0.051478	0.063223	-0.026147
1980	-0.027359	-0.066047	-0.062861	-0.060142
1981	-0.096818	0.027462	-0.107885	0.005280
1982	-0.096550	-0.035798	-0.024985	0.025118
1983	0.045443	0.046887	0.036371	0.074354
1984	0.083876	-0.026540	0.034745	0.046212
1985	0.036900	-0.048619	-0.000108	-0.080953
1986	0.042601	-0.066397	-0.024964	-0.046758
1987	0.011730	-0.055238	0.007588	0.022871
1988	-0.019453	-0.106733	-0.149585	-0.110341
1989	-0.023718	0.094741	0.080615	-0.022956
1990	-0.034863	-0.010486	-0.027119	0.019105
1991	0.001581	-0.167707	0.229546	0.152716
1992	0.022554	0.088309	-0.089969	-0.029030
1993	0.082090	-0.016037	-0.079872	-0.013014
1994	0.061329	0.036973	0.019349	0.069831
1995	0.028795	-0.045773	-0.141597	-0.061296
1996	-0.044325	-0.006368	-0.085267	0.027105
1997	0.109528	0.026175	0.092858	
1998	-0.128749	0.065556	0.109498	0.024967
1999	-0.080746	0.029237	0.008587	-0.065477
2000	-0.017237	0.066183	-0.029061	-0.044584
2001	0.001337	0.013924	-0.013918	

Demand Equation for: Certified Mail
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-6.883379	0.173028	-39.781879
BGVOL1_3	0.856415	0.225062	3.805241
TREND	0.007492	0.000682	10.985666
GDIST	0.065639	0.035953	1.825679
D_DC	-0.116631	0.032487	-3.590071
PX37	-0.000020	0.158571	-0.000124
lag 1	-0.034429	0.282826	-0.121733
lag 2	-0.048041	0.309370	-0.155286
lag 3	-0.049148	0.290415	-0.169233
lag 4	-0.044820	0.163137	-0.274740

LONG RUN PRICE ELASTICITIES

	PX37
current	-0.000020
lag 1	-0.034429
lag 2	-0.048041
lag 3	-0.049148
lag 4	-0.044820
Sum	-0.176458

T-Statistic on Sum
-3.224654

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.603132
Mean Sq. Error	0.005799
Standard Error of Model	0.076153
Durbin-Watson	1.986092
R-Square	0.967966
Adj. R-Square	0.962422
Degrees of Freedom	104.
F-Statistic	174.586
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.995840
4-year Net Trend	0.987879
3-year Net Trend	0.996523
2-year Net Trend	1.026126
1-year Net Trend	1.024872

CHOSEN K-SQUARE VALUES

PX37	0.317188

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.005548	0.005555	0.090536	0.061357
2	.	0.152062	0.153128	0.090909	1.684411
3	.	0.124653	0.128387	0.091287	1.406405
4	.	0.059002	0.040539	0.091670	0.442225
5	.	-0.003842	-0.042246	0.092057	-0.458914
6	.	0.181576	0.160014	0.092450	1.730819
7	.	-0.097634	-0.099418	0.092848	-1.070763
8	.	-0.116609	-0.187370	0.093250	-2.009316
9	.	-0.071328	-0.106096	0.093659	-1.132796

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-0.619613	0.859611	-0.720806
SEP16_30	1.353715	0.394294	3.433263
OCT	0.849793	0.329018	2.582816
NOV_DEC10	-0.523892	0.281653	-1.860062
DEC11_12	0.744192	0.402027	1.851099
DEC13_15	0.744192	0.402027	1.851099
DEC16_17	0.744192	0.402027	1.851099
DEC18_19	0.744192	0.402027	1.851099
DEC20_21	0.744192	0.402027	1.851099
DEC22_23	0.744192	0.402027	1.851099
DEC24	0.744192	0.402027	1.851099
DEC25_JAN1	0.744192	0.402027	1.851099
JAN_FEB	-0.056550	0.150928	-0.374685
MARCH	1.112003	0.300295	3.703036
APR1_15	0.004186	0.145409	0.028791
APR16_MAY	0.004186	0.145409	0.028791
JUNE	1.265223	0.361191	3.502919

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.089383	0.387924	0.401898	0.279705
1972	0.075388	0.386084	0.363097	0.286436
1973	0.122389	0.368378	0.352218	0.289524
1974	0.137007	0.350673	0.332817	0.298986
1975	0.151626	0.332967	0.340160	0.296612
1976	0.166244	0.324115	0.354847	0.306273
1977	0.154090	0.309180	0.352489	0.311104
1978	0.165925	0.291340	0.350132	0.313005
1979	0.192319	0.282197	0.339253	0.316093
1980	0.193995	0.258561	0.327196	0.323180
1981	0.197347	0.274210	0.344239	0.328011
1982	0.188121	0.286530	0.341882	0.332841
1983	0.176996	0.267376	0.339525	0.337672
1984	0.188553	0.230858	0.326288	0.339731
1985	0.215604	0.237623	0.306888	0.343333
1986	0.225127	0.231876	0.314231	0.335100
1987	0.234651	0.235258	0.331274	0.334071
1988	0.233443	0.229511	0.326560	0.332013
1989	0.240934	0.217508	0.324203	0.330984
1990	0.266335	0.211761	0.313324	0.334072
1991	0.267985	0.206014	0.293923	0.337674
1992	0.277508	0.191138	0.328010	0.321080
1993	0.285824	0.216161	0.339889	0.308931
1994	0.273884	0.204158	0.356674	0.293054
1995	0.303222	0.175992	0.373459	0.277177
1996	0.328622	0.151987	0.381851	0.265883
1997	0.364007	0.119124	0.398636	0.273350
1998	0.362512	0.111821	0.406569	0.295524
1999	0.350284	0.104519	0.423354	0.302863
2000	0.327325	0.090961	0.421513	0.317541
2001	0.320396	0.093566	0.412201	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.041171	0.074121	0.034912	0.018195
1972	0.006597	0.066687	0.132071	0.280615
1973	-0.088814	0.049597	-0.054527	0.056201
1974	-0.077219	-0.047885	-0.059094	-0.182404
1975	-0.039730	0.082742	-0.022557	-0.099837
1976	0.237242	-0.172337	-0.023216	0.015268
1977	-0.015882	-0.017284	0.076979	0.003583
1978	0.017910	-0.045357	0.027056	-0.007861
1979	-0.042337	0.003988	-0.078832	-0.096401
1980	0.070393	0.032712	0.076593	-0.046615
1981	-0.037502	0.009368	-0.047446	0.006011
1982	0.000027	-0.028668	-0.010190	0.023675
1983	-0.136969	-0.004202	-0.004893	0.051712
1984	0.019400	-0.049839	-0.028296	0.068288
1985	-0.084103	0.005047	0.022251	-0.056818
1986	-0.022981	0.062104	-0.057293	0.033337
1987	0.083898	0.033378	-0.028612	-0.007131
1988	-0.006430	0.117121	-0.080533	-0.137320
1989	-0.008632	-0.162121	-0.031014	-0.077579
1990	-0.020886	-0.057376	0.007988	-0.127785
1991	-0.005061	-0.069010	-0.020161	0.043700
1992	-0.057294	0.009761	0.054935	0.018542
1993	0.107660	0.038604	0.043167	0.036896
1994	0.133203	0.024788	0.043282	-0.075332
1995	-0.040311	-0.031800	0.062871	0.112080
1996	-0.056732	0.052553	0.005861	0.120129
1997	0.065792	0.071329	-0.020225	0.078317
1998	-0.003242	-0.013399	0.010651	-0.036277
1999	-0.092648	-0.024434	-0.007255	-0.029588
2000	0.045013	-0.025046	-0.038333	0.014410
2001	-0.003702	0.039766	0.001108	

Demand Equation for: Cash-on-Delivery
Sample Period : 1971Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-6.786574	0.273335	-24.828779
TREND	-0.016961	0.000803	-21.121591
D97Q4	0.165039	0.087407	1.888162
PX38	-0.167990	0.214726	-0.782344
lag 1	-0.015138	0.256080	-0.059115
lag 2	-0.001338	0.257156	-0.005205
lag 3	-0.210171	0.258076	-0.814378
lag 4	-0.137908	0.214148	-0.643985

LONG RUN PRICE ELASTICITIES

	PX38
current	-0.167990
lag 1	-0.015138
lag 2	-0.001338
lag 3	-0.210171
lag 4	-0.137908
Sum	-0.532546

T-Statistic on Sum
-2.847343

REGRESSION DIAGNOSTICS

Sum of Square Resids	1.022686
Mean Sq. Error	0.009740
Standard Error of Model	0.098691
Durbin-Watson	2.158107
R-Square	0.980494
Adj. R-Square	0.977336
Degrees of Freedom	105.
F-Statistic	351.858
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.003612
4-year Net Trend	1.005545
3-year Net Trend	1.012992
2-year Net Trend	1.016122
1-year Net Trend	1.064862

CHOSEN K-SQUARE VALUES

PX38	0.023438

AR-Coefficients

	AR-coefficients	Std. Error	T-ratio
Rho-1	0.621930	0.072827	8.539779

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.085991	-0.086606	0.090909	-0.952667
2	.	0.075313	0.068139	0.091287	0.746420
3	.	-0.032986	-0.021766	0.091670	-0.237439
4	.	0.106351	0.104650	0.092057	1.136785
5	.	0.114425	0.148249	0.092450	1.603553
6	.	-0.020847	-0.009746	0.092848	-0.104971
7	.	0.272163	0.281783	0.093250	3.021790
8	.	-0.220244	-0.223889	0.093659	-2.390483
9	.	0.029603	-0.092748	0.094072	-0.985929

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.071331	0.778605	-1.375962
SEP16_30	0.372686	0.250329	1.488785
OCT	0.372686	0.250329	1.488785
NOV_DEC10	-0.129295	0.238692	-0.541682
DEC11_12	-0.129295	0.238692	-0.541682
DEC13_15	0.728843	0.368578	1.977445
DEC16_17	0.728843	0.368578	1.977445
DEC18_19	0.728843	0.368578	1.977445
DEC20_21	0.728843	0.368578	1.977445
DEC22_23	0.728843	0.368578	1.977445
DEC24	0.728843	0.368578	1.977445
DEC25_JAN1	0.728843	0.368578	1.977445
JAN_FEB	-0.091190	0.145176	-0.628134
MARCH	0.488149	0.272135	1.793775
APR1_15	-1.962862	0.686161	-2.860644
APR16_MAY	0.639294	0.273144	2.340500
JUNE	0.639294	0.273144	2.340500

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971	0.160968	0.071539	0.238962	-0.007008
1972	0.167581	0.128257	0.138879	-0.000807
1973	0.169318	0.119479	0.157733	0.006971
1974	0.176800	0.110701	0.157733	0.013200
1975	0.184282	0.101923	0.155408	0.003843
1976	0.191764	0.097534	0.150757	0.010043
1977	0.206332	0.090130	0.148432	0.013143
1978	0.200633	0.081285	0.126090	0.016243
1979	0.199172	0.080007	0.144944	0.024022
1980	0.193519	0.074797	0.142618	0.020893
1981	0.182212	0.095572	0.140293	0.023993
1982	0.179386	0.108188	0.137968	0.027093
1983	0.187971	0.095845	0.135643	0.030193
1984	0.182406	0.077740	0.172188	0.041072
1985	0.171276	0.094314	0.132155	0.047301
1986	0.165711	0.098075	0.129829	0.037944
1987	0.160146	0.106362	0.127504	0.041044
1988	0.157364	0.110123	0.122853	0.047244
1989	0.151799	0.107477	0.100512	0.050344
1990	0.146234	0.111238	0.119365	0.058123
1991	0.140669	0.114999	0.119365	0.064351
1992	0.135104	0.114234	0.114715	0.058094
1993	0.133461	0.133155	0.120373	0.054393
1994	0.133461	0.130510	0.118083	0.057530
1995	0.141304	0.108049	0.096080	0.060666
1996	0.149147	0.089349	0.114648	0.083333
1997	0.153553	0.079106	0.112358	0.090854
1998	0.138834	0.078511	0.105679	0.110979
1999	0.120193	0.084620	0.103389	0.131104
2000	0.097630	0.091026	0.061540	0.171354
2001	0.068191	0.077023	0.071330	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1971		-0.007230	-0.072758	0.041398
1972	0.000086	-0.007291	0.036117	-0.032146
1973	0.005656	0.028050	-0.000785	-0.034865
1974	-0.038679	-0.031605	-0.004073	-0.051890
1975	-0.046733	-0.069751	-0.067162	-0.030558
1976	-0.145589	-0.048616	-0.009633	0.054930
1977	0.084145	-0.086651	0.039504	0.022919
1978	0.172275	0.065831	-0.173496	-0.088641
1979	-0.024346	-0.060139	0.020903	-0.038688
1980	0.074500	-0.052914	-0.040364	0.107026
1981	-0.046459	0.060728	0.026552	-0.023694
1982	-0.029636	0.041699	0.331286	-0.219752
1983	-0.037852	0.066806	0.000646	-0.001949
1984	-0.043927	0.146089	-0.068002	0.072829
1985	0.029449	0.000918	-0.122729	0.028993
1986	-0.015210	-0.078431	0.049522	0.033122
1987	0.006436	-0.022433	0.049735	-0.026405
1988	-0.012969	-0.044503	0.020946	0.048698
1989	0.208548	0.112564	-0.137596	0.191795
1990	0.081939	0.142593	0.033820	0.180791
1991	-0.013078	0.007761	0.118717	0.042298
1992	-0.002834	0.079636	0.128639	0.085428
1993	-0.007474	-0.038824	0.003787	-0.070770
1994	-0.047436	-0.175418	0.017557	-0.038644
1995	-0.103203	0.103800	-0.074322	-0.002981
1996	-0.041542	0.060468	-0.022902	0.003434
1997	-0.085488	0.032668	-0.028738	-0.006506
1998	-0.010461	-0.066316	-0.028298	-0.207402
1999	0.323671	-0.138991	-0.013613	-0.177327
2000	-0.016332	0.065521	0.097686	0.150278
2001	-0.196684	-0.110554	-0.118902	

Demand Equation for: Return Receipts
Sample Period : 1993Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-1.962786	0.985496	-1.991673
TREND	-0.001570	0.002318	-0.677343
BGVOL37	0.660060	0.179223	3.682900
D_MEPS	0.180795	0.047384	3.815521
PX_RR	-0.014598	0.555341	-0.026286
lag 1	-0.275712	0.643391	-0.428530
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

	PX_RR
current	-0.014598
lag 1	-0.275712
lag 2	0.000000
lag 3	0.000000
lag 4	-0.000000
Sum	-0.290310

T-Statistic on Sum
-0.763171

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.142287
Mean Sq. Error	0.005473
Standard Error of Model	0.073977
Durbin-Watson	1.512481
R-Square	0.738288
Adj. R-Square	0.657761
Degrees of Freedom	26.
F-Statistic	9.168
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	1.014274
4-year Net Trend	0.986472
3-year Net Trend	1.008774
2-year Net Trend	1.019274
1-year Net Trend	0.992095

CHOSEN K-SQUARE VALUES

PX_RR	0.001563

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.240070	0.240922	0.171499	1.404802
2	.	0.000989	-0.062087	0.174078	-0.356664
3	.	-0.300849	-0.306917	0.176777	-1.736184
4	.	-0.396600	-0.296007	0.179605	-1.648096
5	.	-0.346029	-0.280749	0.182574	-1.537725
6	.	-0.104550	-0.156895	0.185695	-0.844905
7	.	0.059229	-0.175191	0.188982	-0.927026
8	.	0.264650	-0.027407	0.192450	-0.142409
9	.	0.141860	-0.226570	0.196116	-1.155286

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	0.082689	0.066549	1.242532
SEP16_30	0.082689	0.066549	1.242532
OCT	0.082689	0.066549	1.242532
NOV_DEC10	0.082689	0.066549	1.242532
DEC11_12	0.082689	0.066549	1.242532
DEC13_15	0.000000	0.000012	0.000001
DEC16_17	-0.000000	0.000005	-0.000001
DEC18_19	0.000000	0.000011	0.000001
DEC20_21	0.000000	0.000000	0.000000
DEC22_23	0.000000	0.000000	0.000000
DEC24	0.000000	0.000000	0.000000
DEC25_JAN1	0.000000	0.000006	0.000000
JAN_FEB	0.103439	0.070924	1.458444
MARCH	0.103439	0.070924	1.458444
APR1_15	0.103439	0.070924	1.458444
APR16_MAY	0.103439	0.070924	1.458444
JUNE	0.103439	0.070924	1.458444

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1993	0.082689	0.080649	0.103439	0.042461
1994	0.082689	0.079841	0.103439	0.042705
1995	0.082689	0.081133	0.103439	0.042950
1996	0.082689	0.080809	0.103439	0.042099
1997	0.082689	0.080161	0.103439	0.043316
1998	0.082689	0.079836	0.103439	0.043560
1999	0.082689	0.078866	0.103439	0.043804
2000	0.082689	0.078058	0.103439	0.044292
2001	0.082689	0.079026	0.103439	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1993	0.010202	0.014957	-0.009223	0.002013
1994	-0.074394	-0.063525	0.023095	0.027796
1995	0.069079	0.203863	-0.081061	-0.070063
1996	-0.064415	-0.072126	-0.042027	0.019583
1997	0.088816	0.149556	0.007431	0.021456
1998	-0.070457	-0.046125	0.007970	-0.018906
1999	-0.009921	-0.127053	0.017518	0.016184
2000	0.045968	-0.039795	0.033095	0.007352
2001	0.015789	-0.023382	0.030753	

Demand Equation for: Money Orders
Sample Period : 1988Q1 TO 2001Q3

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-8.006732	0.650487	-12.308827
YD96PERM	0.971755	0.164822	5.895782
UCAP	0.762563	0.384933	1.981027
PX39	-0.147026	0.338211	-0.434715
lag 1	-0.098675	0.455231	-0.216757
lag 2	-0.008358	0.469596	-0.017799
lag 3	-0.075673	0.449745	-0.168258
lag 4	-0.184795	0.257406	-0.717913

LONG RUN PRICE ELASTICITIES

	PX39
current	-0.147026
lag 1	-0.098675
lag 2	-0.008358
lag 3	-0.075673
lag 4	-0.184795
Sum	-0.514527

T-Statistic on Sum
-6.414728

REGRESSION DIAGNOSTICS

Sum of Square Resids	0.047139
Mean Sq. Error	0.001209
Standard Error of Model	0.034766
Durbin-Watson	1.776360
R-Square	0.939531
Adj. R-Square	0.916274
Degrees of Freedom	39.
F-Statistic	40.398
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

5-year Net Trend	0.994323
4-year Net Trend	0.981088
3-year Net Trend	0.998857
2-year Net Trend	0.988824
1-year Net Trend	0.967831

CHOSEN K-SQUARE VALUES

PX39	0.006250

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	0.108396	0.108780	0.136083	0.799366
2	.	0.046722	0.035817	0.137361	0.260752
3	.	-0.035677	-0.044207	0.138675	-0.318779
4	.	0.002048	0.007744	0.140028	0.055300
5	.	-0.266664	-0.292338	0.141421	-2.067139
6	.	-0.010496	0.065372	0.142857	0.457601
7	.	-0.113568	-0.131924	0.144338	-0.913996
8	.	-0.072320	-0.043332	0.145865	-0.297069
9	.	0.006374	0.046532	0.147442	0.315593

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEP1_15	-1.279482	0.420135	-3.045407
SEP16_30	-1.279482	0.420135	-3.045407
OCT	-0.034298	0.332467	-0.103161
NOV_DEC10	-1.302078	0.416568	-3.125727
DEC11_12	-1.302078	0.416568	-3.125727
DEC13_15	-1.302078	0.416568	-3.125727
DEC16_17	-1.302078	0.416568	-3.125727
DEC18_19	2.043793	1.354122	1.509312
DEC20_21	2.043793	1.354122	1.509312
DEC22_23	2.043793	1.354122	1.509312
DEC24	2.043793	1.354122	1.509312
DEC25_JAN1	-1.054048	0.370451	-2.845309
JAN_FEB	-1.054048	0.370451	-2.845309
MARCH	-1.054048	0.370451	-2.845309
APR1_15	0.168102	0.755857	0.222400
APR16_MAY	-0.950695	0.368514	-2.579807
JUNE	-2.181345	0.897688	-2.429959

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	-0.763241	-0.836231	-0.825593	-0.793014
1989	-0.834623	-0.789765	-0.799644	-0.803500
1990	-0.824542	-0.789765	-0.790112	-0.801305
1991	-0.804733	-0.793640	-0.771179	-0.793866
1992	-0.804380	-0.797516	-0.774359	-0.822562
1993	-0.813578	-0.805266	-0.778596	-0.817187
1994	-0.833034	-0.809142	-0.780162	-0.813319
1995	-0.832681	-0.811080	-0.773252	-0.809451
1996	-0.822600	-0.811080	-0.782511	-0.770747
1997	-0.802438	-0.818831	-0.784077	-0.789170
1998	-0.802085	-0.822706	-0.785643	-0.799781
1999	-0.811636	-0.826582	-0.787209	-0.795912
2000	-0.831092	-0.830457	-0.781865	-0.788176
2001	-0.820658	-0.832395	-0.791124	

REGRESSION RESIDUALS

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1988	0.017959	0.009614	0.028385	-0.040869
1989	0.022118	-0.032447	0.005155	-0.008335
1990	-0.004000	-0.008112	-0.002718	-0.005518
1991	-0.027296	0.010311	-0.001837	-0.003977
1992	-0.033442	0.026419	-0.024623	0.004829
1993	-0.032305	0.004482	-0.029616	0.006179
1994	0.007221	0.024547	-0.015213	-0.006918
1995	0.002068	0.028141	-0.023670	-0.013671
1996	0.026471	-0.030838	0.046326	0.142923
1997	0.022887	-0.006199	0.019768	-0.010217
1998	-0.016959	-0.034867	-0.015625	-0.014806
1999	0.011349	-0.021179	0.028224	0.003337
2000	0.037288	0.019655	-0.012818	-0.056452
2001	-0.029582	0.008956	-0.000502	

Demand Equation for: Delivery Confirmation
Sample Period : 2000Q2 TO 2001Q3

equation dc bgvol_dc = a + b*bgvol8 + c*px_dc + (p1 / (1+p2*exp(-p3*t)))

Nonlinear Least Squares

Convergence achieved after 21 iterations.

Equation DC

Dependent variable is BGVOL_DC

Variable	Coefficient	Std Err	T-stat	Signf
A	-4.09486	1.86472	-2.19596	.272
B	1.17156	.543112E-01	21.5712	.029
C	-.716542	.710760	-1.00813	.497
P1	1.63132	.581199	2.80682	.218
P2	1.59152	.842176	1.88978	.310
P3	.483734	.186300	2.59653	.234

R-Squared= .99979 No. obs= 7
R-Bar-Squared (adj) = .99877
Durbin-Watson (0 gaps) = 3.498663
Sum of squared residuals = .101744E-03
Std. error of regression = .100868E-01
Sum of residuals = -.491085E-06
Mean of dependent variable = -5.92925
Log of likelihood function = 29.0538

IV. Share Equation Estimation

The programs and results associated with the econometric share equations are presented below. The program files used to generate these results are attached. The results of these equations are summarized in section IV of my testimony (USPS-T-8).

Workshared First-Class Letters

```
Soritec Log File
Thursday, June 07, 2001 14:51:07

3> access rcf_r2001


  *** File opened  ( 1): rcf_r2001.sdb

4> !
4> use 1976q4 1996q3
5> revise d1_3f1 = d1_3f3
6> use 1996q4
7> revise d1_3f1 = (60/88)*d1_3f1{-1} + (28/88)*d1_3f1{+1}
8> !
8> use 1976q4 2001q3
9> vol1_3z = vol1_3z1 + vol1_3z3
10> d1_3z = d1_3z3
11> !
11> use 2000q2
12> revise vol1_3ws = vol1_3ws - 71.185041
13> use 2000q3
14> revise vol1_3ws = vol1_3ws - 143.022326
15> !
15> use 1976q4 2001q3
16> dot '1_3f1' '1_3f3' '1_3b1' '1_3b3' '1_3b5' '1_3z' '1_3c'
17> pct: = vol: / vol1_3ws
18> d: = (d: - d1_3na) / pc
19> enddot
20> !
20> use 1993q1 2016q1
21> dummy fall  1993q1 4
22> dummy winter 1993q2 4
23> dummy spring 1993q3 4
24> dummy summer 1993q4 4
25> dummy d94 1994q2 1
26> dummy mc95 1996q4 1
27> dummy d00q3 2000q3 1
28> time t
29> t = t - 1
30> t_mc95 = t - 15
31> use 1993q1 1996q4
32> revise t_mc95 = 0
33> use 1996q4
34> revise mc95 = (60/88)
35> !
35> use 2004q1
36> t_inc = 1
37> on dynamic
38> use 2004q2 2005q1
39> revise t_inc = t_inc{-1} - .05
40> use 2005q2 2016q1
41> revise t_inc = t_inc{-1} - .075
42> use 2004q1 2016q1
43> t_inc = t_inc*(t_inc>=0)
44> revise t = t{-1} + t_inc
45> revise t_mc95 = t_mc95{-1} + t_inc
```

```
46> !
46> use 1993q1 2001q3
47> equation ez pct1_3z = (az*(1-mc95)) / ...
47>
(1+exp(-(d1_3z-(mu_z0+mu_zf*fall+mu_zw*winter+mu_zs*spring+mu_zt*t+oc1_3b3+oc1_3b5))
/ ...
47> sigz)) + ...
47> 100000*((1-az)-abs(1-az)) + ...
47> 100000*(sigz - abs(sigz))
47> parameter az .25 sigz .0035
48> !
48> equation eb1 pct1_3b1 = ab1_m*mc95 / ...
48>
(1+exp(-(d1_3b1-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t_mc95+oc1_3b
3)) / ...
48> sigb1)) + ...
48> 100000*((1-ab1_m)-abs(1-ab1_m)) + ...
48> 100000*(sigb1 - abs(sigb1))
48> parameter ab1_m .118356 sigb1 .022475
49> !
49> equation eb3 pct1_3b3 = (ab30+ab3_m*mc95) / ...
49>
(1+exp(-(d1_3b3-(mu_b30+mu_b3f*fall+mu_b3f*winter+mu_b3f*spring-mu_b3t*t+mu_b3tm*t_m
c95-mu_b3mc*mc95+oc1_3z+oc1_3b1+oc1_3b5)) / ...
49> sigb3)) + ...
49> 100000*((1-ab30-ab3_m)-abs(1-ab30-ab3_m)) + ...
49> 100000*(sigb3 - abs(sigb3))
49> parameter ab30 .407603 ab3_m 0.097814 sigb3 .015415
50> !
50> equation eb5 pct1_3b5 = ab5 / ...
50>
(1+exp(-(d1_3b5-(mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_m
c95+mu_b5mc*mc95+oc1_3z+oc1_3b3)) / ...
50> sigb5)) + ...
50> 100000*((1-ab5)-abs(1-ab5)) + ...
50> 100000*(sigb5 - abs(sigb5))
50> parameter ab5 .291899 sigb5 .016479
51> !
51> equation ef1 pct1_3f1 = (af10+af1m*mc95) / ...
51>
(1+exp(-(d1_3f1-(mu_f10+mu_f1f*fall+mu_f1f*winter+mu_f1s*spring+mu_f1t*t-mu_f1m*mc95
-mu_f1tm*t_mc95+oc1_3f3)) ...
51> / sigf1)) + ...
51> 100000*((1-(af10+af1m*mc95))-abs(1-(af10+af1m*mc95))) + ...
51> 100000*(sigf1 - abs(sigf1))
51> parameter af10 .002 af1m .0015 sigf1 .0025
52> !
52> equation ef3 pct1_3f3 = (af30+af3m*mc95) / ...
52>
(1+exp(-(d1_3f3-(mu_f30-mu_f3f*fall-mu_f3f*winter-mu_f3s*spring-mu_f3t*t-mu_f3m*mc95
+mu_f3t*t_mc95+oc1_3f1)) ...
52> / sigf3)) + ...
52> 100000*((1-(af30+af3m*mc95))-abs(1-(af30+af3m*mc95))) + ...
52> 100000*(sigf3 - abs(sigf3))
52> parameter af30 .013 af3m .002 sigf3 .008
53> !
53> equation ec pct1_3c = (ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95) / ...
```

```
53>
(1+exp(-(dl_3c-(mu_c0+mu_cf*fall+mu_cw*winter+mu_cs*spring+mu_ct*t+mu_c94*d94+mu_cm*
mc95+bc*mc95*oc1_3b5)) ...
53> / sigc)) + ...
53> 100000*((1-ac)-abs(1-ac)) + ...
53> 100000*(sigc - abs(sigc))
53> parameter ac .105534 cpct0 .465170 cpct1 .061241 bc 1.926 sigc .047888
54> !
54> use 1993q1 2001q3
55> mu1_3z = sigz*ln(((az*(1-mc95))/pct1_3z)-1) + d1_3z


  *** WARNING 190: Transformation at line 55.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.

56> mu1_3b1 = sigb1*ln(((ab1_m*mc95)/pct1_3b1)-1) + d1_3b1


  *** WARNING 190: Transformation at line 56.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 15 times.

  *** WARNING 191: Transformation at line 56.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.

57> mu1_3b3 = sigb3*ln(((ab30+ab3_m*mc95)/pct1_3b3)-1) + d1_3b3
58> mu1_3b5 = sigb5*ln((ab5/pct1_3b5)-1) + d1_3b5


  *** WARNING 191: Transformation at line 58.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.

59> mu1_3f1 = sigf1*ln(((af10+af1m*mc95)/pct1_3f1)-1) + d1_3f1
60> mu1_3f3 = sigf3*ln(((af30+af3m*mc95)/pct1_3f3)-1) + d1_3f3
61> mu1_3c = sigc*ln(((ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95)/pct1_3c)-1) + d1_3c
62> !
62> dot z b1 b3 b5 f1 f3 c
63> sig1_3: = sig:
64> enddot
65> dot '1_3z' '1_3b1' '1_3b3' '1_3b5' '1_3f1' '1_3f3' '1_3c'
66> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
67> zpct = 1 / (1 + exp(mu:/sig:))
68> gzpct = (napct-zpct)/napct
69> lzpct = 1 - gzpct
70> totbar = d: + sig:*log(1 - napct)/napct
71> lzbar = sig:*log(1 - zpct)/zpct
72> ubar = (totbar - lzbar*lzpct)
73> oc: = (d: - ubar)*pct:
74> enddot
75> !
75> !mu1_3c = mu1_3c - bc*mc95*oc1_3b5
75> mu1_3b5 = mu1_3b5 - oc1_3z - oc1_3b3
76> mu1_3b3 = mu1_3b3 - oc1_3z - oc1_3b1 - oc1_3b5
```

```
77> mu1_3b1 = mu1_3b1 - oc1_3b3
78> mu1_3z = mu1_3z - oc1_3b3 - oc1_3b5
79> mu1_3f3 = mu1_3f3 - oc1_3f1
80> mu1_3f1 = mu1_3f1 - oc1_3f3
81> dot b3 b5 f1 f3
82> regress mu1_3: fall winter spring t mc95 t_mc95
83> parameter mu_:0 = ^coef(1)
84> parameter mu_:f = ^coef(2)
85> parameter mu_:w = ^coef(3)
86> parameter mu_:s = ^coef(4)
87> parameter mu_:t = ^coef(5)
88> parameter mu_:m = ^coef(6)
89> parameter mu_:tm = ^coef(7)
90> enddot
```

REGRESS : dependent variable is MU1_3B3

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	-.199690E-02	.145250E-02	-1.37480	.180
FALL	.172491E-02	.119036E-02	1.44907	.158
WINTER	.202361E-02	.118871E-02	1.70236	.100
SPRING	.271820E-02	.119340E-02	2.27770	.031
T	-.174832E-02	.145324E-03	-12.0305	.000
MC95	.835404E-02	.177432E-02	4.70829	.000
T_MC95	.162177E-02	.172036E-03	9.42688	.000

Equation Summary

No. of Observations =	35	R2= .8879	(adj)= .8639
Sum of Sq. Resid. =	.166443E-03	Std. Error of Reg.=	.243811E-02
Log(likelihood) =	164.821	Durbin-Watson =	1.36024
Schwarz Criterion =	152.377	F (6, 28) =	36.9687
Akaike Criterion =	157.821	Significance =	.000000

REGRESS : dependent variable is MU1_3B5

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.125193E-01	.384702E-02	3.25428	.003
FALL	.288879E-03	.315273E-02	.916281E-01	.928
WINTER	-.169951E-02	.314836E-02	-.539808	.594
SPRING	.272296E-02	.316077E-02	.861484	.396
T	-.227042E-02	.384898E-03	-5.89876	.000
MC95	.486651E-01	.469938E-02	10.3556	.000
T_MC95	-.550420E-03	.455647E-03	-1.20800	.237

Equation Summary

No. of Observations =	35	R2= .8410	(adj)= .8069

Sum of Sq. Resid. =	.116757E-02	Std. Error of Reg.=	.645746E-02
Log(likelihood) =	130.730	Durbin-Watson =	2.00784
Schwarz Criterion =	118.287	F (6, 28) =	24.6747
Akaike Criterion =	123.730	Significance =	.000000

REGRESS : dependent variable is MU1_3F1

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.182259E-01	.699691E-03	26.0485	.000
FALL	.597932E-04	.573416E-03	.104276	.918
WINTER	.596481E-04	.572620E-03	.104167	.918
SPRING	-.116842E-02	.574878E-03	-2.03246	.052
T	-.714144E-04	.700047E-04	-1.02014	.316
MC95	-.990189E-02	.854719E-03	-11.5850	.000
T_MC95	.253606E-04	.828726E-04	.306019	.762

Equation Summary

No. of Observations =	35	R2= .9634 (adj)=	.9555
Sum of Sq. Resid. =	.386230E-04	Std. Error of Reg.=	.117448E-02
Log(likelihood) =	190.385	Durbin-Watson =	1.17524
Schwarz Criterion =	177.941	F (6, 28) =	122.746
Akaike Criterion =	183.385	Significance =	.000000

REGRESS : dependent variable is MU1_3F3

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.429667E-01	.190165E-02	22.5944	.000
FALL	-.199128E-02	.155846E-02	-1.27772	.212
WINTER	-.169289E-02	.155629E-02	-1.08777	.286
SPRING	-.119053E-02	.156243E-02	-.761976	.452
T	-.102744E-02	.190262E-03	-5.40015	.000
MC95	.315799E-02	.232299E-02	1.35945	.185
T_MC95	.110024E-02	.225235E-03	4.88485	.000

Equation Summary

No. of Observations =	35	R2= .6232 (adj)=	.5424
Sum of Sq. Resid. =	.285297E-03	Std. Error of Reg.=	.319205E-02
Log(likelihood) =	155.390	Durbin-Watson =	1.50846
Schwarz Criterion =	142.947	F (6, 28) =	7.71717
Akaike Criterion =	148.390	Significance =	.000059

```
91> ocl_3b5m = mc95*ocl_3b5
92> regress mul_3c fall winter spring t mc95 d94 ocl_3b5m
```

```
REGRESS : dependent variable is MU1_3C

Using   1993Q1-2001Q3
```

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	-.252995E-01	.418308E-02	-6.04805	.000
FALL	-.614948E-02	.344479E-02	-1.78515	.085
WINTER	-.772988E-02	.349031E-02	-2.21467	.035
SPRING	-.352697E-02	.345270E-02	-1.02151	.316
T	.219936E-02	.644137E-03	3.41443	.002
MC95	.447729E-01	.619656E-02	7.22545	.000
D94	-.379358E-01	.625110E-02	-6.06866	.000
OC1_3B5M	1.14610	1.21328	.944626	.353

Equation Summary

No. of Observations =	35	R2= .9801	(adj)= .9749
Sum of Sq. Resid. =	.133698E-02	Std. Error of Reg.=	.703689E-02
Log(likelihood) =	128.359	Durbin-Watson =	1.45765
Schwarz Criterion =	114.138	F (7, 27) =	189.532
Akaike Criterion =	120.359	Significance =	.000000

```
93> parameter mu_c0 = ^coef(1)
94> parameter mu_cf = ^coef(2)
95> parameter mu_cw = ^coef(3)
96> parameter mu_cs = ^coef(4)
97> parameter mu_ct = ^coef(5)
98> parameter mu_cm = ^coef(6)
99> parameter mu_c94 = ^coef(7)
100> parameter bc = ^coef(8)
101> use 1993q1 1996q3
102> regress mu1_3z fall winter spring t

REGRESS : dependent variable is MU1_3Z

Using   1993Q1-1996Q3
```

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.372772E-02	.198636E-03	18.7666	.000
FALL	.115941E-03	.212382E-03	.545908	.597
WINTER	.293016E-03	.211716E-03	1.38400	.196
SPRING	-.960232E-04	.212382E-03	-.452125	.661
T	.222265E-03	.168078E-04	13.2239	.000

Equation Summary

No. of Observations =	15	R2= .9472	(adj)= .9261
Sum of Sq. Resid. =	.768406E-06	Std. Error of Reg.=	.277201E-03
Log(likelihood) =	104.618	Durbin-Watson =	1.15642
Schwarz Criterion =	97.8483	F (4, 10) =	44.8498
Akaike Criterion =	99.6184	Significance =	.000002

```
103> parameter mu_z0 = ^coef(1)
```

```
104> parameter mu_zf = ^coef(2)
105> parameter mu_zw = ^coef(3)
106> parameter mu_zs = ^coef(4)
107> parameter mu_zt = ^coef(5)
108> use 1997q1 2001q3
109> regress mu1_3b1 fall winter spring t_mc95


  REGRESS : dependent variable is MU1_3B1

  Using   1997Q1-2001Q3


     Variable          Coefficient      Std Err        T-stat      Signf

  ^CONST                -.267159E-01   .120153E-01   -2.22348       .043
  FALL                  -.778628E-02   .123365E-01   -.631159       .538
  WINTER                 .104093E-01   .123121E-01    .845456       .412
  SPRING                -.186489E-01   .123365E-01   -1.51169       .153
  T_MC95                -.239289E-02   .775587E-03   -3.08526       .008


                              Equation Summary
     No. of Observations =      19       R2=   .5502   (adj)=   .4217
     Sum of Sq. Resid. =   .471604E-02   Std. Error of Reg.=  .183537E-01
     Log(likelihood)   =   51.9018       Durbin-Watson     =  2.02482
     Schwarz Criterion =   44.5407       F (  4,   14)     =   4.28188
     Akaike Criterion  =   46.9018       Significance      =   .018062

110> parameter mu_b10 = ^coef(1)
111> parameter mu_b1f = ^coef(2)
112> parameter mu_b1w = ^coef(3)
113> parameter mu_b1s = ^coef(4)
114> parameter mu_b1t = ^coef(5)
115> !
115> use 1993q1 2001q3
116> dot mu_b1t mu_b3t mu_b3m mu_b5t mu_b5tm mu_f1m mu_f3f mu_f3t mu_f3m
117> set : = -1*:
118> enddot
119> parameter mu_b3mc = mu_b3m
120> parameter mu_b5mt = mu_b5tm
121> parameter mu_b5mc = mu_b5m
122> dot mu_zf mu_zs mu_b3mc mu_b5f mu_b5w mu_f1f mu_f1m mu_f1tm mu_f3s mu_f3m mu_cm
123> constant : = 0
124> enddot


  *** WARNING 198: Command CONSTANT at line 123.
  *** Redefined MU_ZF as different type of item.


  *** WARNING 198: Command CONSTANT at line 123.
  *** Redefined MU_ZS as different type of item.


  *** WARNING 198: Command CONSTANT at line 123.
  *** Redefined MU_B3MC as different type of item.
```

```
*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_B5F as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_B5W as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_F1F as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_F1M as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_F1TM as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_F3S as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_F3M as different type of item.

*** WARNING 198: Command CONSTANT at line 123.
*** Redefined MU_CM as different type of item.

125> !
125> dot mu_c0 mu_cf mu_cw mu_cs mu_ct mu_c94 bc
126> constant : = :
127> enddot

*** WARNING 198: Command CONSTANT at line 126.
*** Redefined MU_C0 as different type of item.

*** WARNING 198: Command CONSTANT at line 126.
*** Redefined MU_CF as different type of item.

*** WARNING 198: Command CONSTANT at line 126.
*** Redefined MU_CW as different type of item.

*** WARNING 198: Command CONSTANT at line 126.
*** Redefined MU_CS as different type of item.

*** WARNING 198: Command CONSTANT at line 126.
*** Redefined MU_CT as different type of item.
```

```
   *** WARNING 198: Command CONSTANT at line 126.
   *** Redefined MU_C94 as different type of item.


   *** WARNING 198: Command CONSTANT at line 126.
   *** Redefined BC as different type of item.


128> regress ec


           Nonlinear Least Squares


  Convergence achieved after 10 iterations.


           Equation EC

           Dependent variable is PCT1_3C

     Variable          Coefficient      Std Err        T-stat      Signf

  AC                      .112249      .128273E-01    8.75078       .000
  CPCT0                   .362865      .831918E-02    43.6179       .000
  CPCT1                   .788402E-01  .170702E-01    4.61858       .001
  SIGC                    .608396E-01  .263747E-01    2.30674       .028


        R-Squared=  .99216     No. obs=    35
        R-Bar-Squared (adj)        =   .99140
        Durbin-Watson (   0 gaps) =  1.215341
        Sum of squared residuals =    .190377E-03
        Std. error of regression =    .247814E-02
        Sum of residuals =           -.942078E-03
        Mean of dependent variable =  .516832E-01
        Log of likelihood function =  162.470

129> constant sigc = sigc


   *** WARNING 198: Command CONSTANT at line 129.
   *** Redefined SIGC as different type of item.

130> dot mu_c0 mu_cf mu_cw mu_cs mu_ct mu_c94 bc
131> parameter : = :
132> enddot


   *** WARNING 198: Command PARAMETER at line 131.
   *** Redefined MU_C0 as different type of item.


   *** WARNING 198: Command PARAMETER at line 131.
   *** Redefined MU_CF as different type of item.
```

```
*** WARNING 198: Command PARAMETER at line 131.
*** Redefined MU_CW as different type of item.


*** WARNING 198: Command PARAMETER at line 131.
*** Redefined MU_CS as different type of item.


*** WARNING 198: Command PARAMETER at line 131.
*** Redefined MU_CT as different type of item.


*** WARNING 198: Command PARAMETER at line 131.
*** Redefined MU_C94 as different type of item.


*** WARNING 198: Command PARAMETER at line 131.
*** Redefined BC as different type of item.


133> !
133> set iteration = 0
134> do
135> dot '1_3z' '1_3b1' '1_3b3' '1_3b5' '1_3f1' '1_3f3' '1_3c'
136> boc: = oc:
137> enddot
138> !
138> regress (maxit=500) ez
139> mu1_3z = sigz*ln(((az*(1-mc95))/pct1_3z)-1) + d1_3z
140> napct = 1 / (1 + exp(-(d1_3z-mu1_3z)/sigz))
141> zpct = 1 / (1 + exp(mu1_3z/sigz))
142> gzpct = (napct-zpct)/napct
143> lzpct = 1 - gzpct
144> totbar = d1_3z + sigz*log(1 - napct)/napct
145> lzbar = sigz*log(1 - zpct)/zpct
146> ubar = (totbar - lzbar*lzpct)
147> revise oc1_3z = (d1_3z - ubar)*pct1_3z
148> !
148> regress (maxit=500) eb1
149> mu1_3b1 = sigb1*ln(((ab1_m*mc95)/pct1_3b1)-1) + d1_3b1
150> napct = 1 / (1 + exp(-(d1_3b1-mu1_3b1)/sigb1))
151> zpct = 1 / (1 + exp(mu1_3b1/sigb1))
152> gzpct = (napct-zpct)/napct
153> lzpct = 1 - gzpct
154> totbar = d1_3b1 + sigb1*log(1 - napct)/napct
155> lzbar = sigb1*log(1 - zpct)/zpct
156> ubar = (totbar - lzbar*lzpct)
157> revise oc1_3b1 = (d1_3b1 - ubar)*pct1_3b1
158> !
158> regress (maxit=500) eb3
159> mu1_3b3 = sigb3*ln(((ab30+ab3_m*mc95)/pct1_3b3)-1) + d1_3b3
160> napct = 1 / (1 + exp(-(d1_3b3-mu1_3b3)/sigb3))
161> zpct = 1 / (1 + exp(mu1_3b3/sigb3))
162> gzpct = (napct-zpct)/napct
163> lzpct = 1 - gzpct
164> totbar = d1_3b3 + sigb3*log(1 - napct)/napct
165> lzbar = sigb3*log(1 - zpct)/zpct
```

```
166> ubar = (totbar - lzbar*lzpct)
167> revise oc1_3b3 = (d1_3b3 - ubar)*pct1_3b3
168> !
168> regress (maxit=500) eb5
169> mu1_3b5 = sigb5*ln((ab5/pct1_3b5)-1) + d1_3b5
170> napct = 1 / (1 + exp(-(d1_3b5-mu1_3b5)/sigb5))
171> zpct = 1 / (1 + exp(mu1_3b5/sigb5))
172> gzpct = (napct-zpct)/napct
173> lzpct = 1 - gzpct
174> totbar = d1_3b5 + sigb5*log(1 - napct)/napct
175> lzbar = sigb5*log(1 - zpct)/zpct
176> ubar = (totbar - lzbar*lzpct)
177> revise oc1_3b5 = (d1_3b5 - ubar)*pct1_3b5
178> !
178> regress (maxit=500) ef1
179> mu1_3f1 = sigf1*ln(((af10+af1m*mc95)/pct1_3f1)-1) + d1_3f1
180> napct = 1 / (1 + exp(-(d1_3f1-mu1_3f1)/sigf1))
181> zpct = 1 / (1 + exp(mu1_3f1/sigf1))
182> gzpct = (napct-zpct)/napct
183> lzpct = 1 - gzpct
184> totbar = d1_3f1 + sigf1*log(1 - napct)/napct
185> lzbar = sigf1*log(1 - zpct)/zpct
186> ubar = (totbar - lzbar*lzpct)
187> revise oc1_3f1 = (d1_3f1 - ubar)*pct1_3f1
188> !
188> regress (maxit=500) ef3
189> mu1_3f3 = sigf3*ln(((af30+af3m*mc95)/pct1_3f3)-1) + d1_3f3
190> napct = 1 / (1 + exp(-(d1_3f3-mu1_3f3)/sigf3))
191> zpct = 1 / (1 + exp(mu1_3f3/sigf3))
192> gzpct = (napct-zpct)/napct
193> lzpct = 1 - gzpct
194> totbar = d1_3f3 + sigf3*log(1 - napct)/napct
195> lzbar = sigf3*log(1 - zpct)/zpct
196> ubar = (totbar - lzbar*lzpct)
197> revise oc1_3f3 = (d1_3f3 - ubar)*pct1_3f3
198> !
198> regress (maxit=500) ec
199> mu1_3c = sigc*ln(((ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95)/pct1_3c)-1) + d1_3c
200> napct = 1 / (1 + exp(-(d1_3c-mu1_3c)/sigc))
201> zpct = 1 / (1 + exp(mu1_3c/sigc))
202> gzpct = (napct-zpct)/napct
203> lzpct = 1 - gzpct
204> totbar = d1_3c + sigc*log(1 - napct)/napct
205> lzbar = sigc*log(1 - zpct)/zpct
206> ubar = (totbar - lzbar*lzpct)
207> revise oc1_3c = (d1_3c - ubar)*pct1_3c
208> !
208> dot '1_3z' '1_3b1' '1_3b3' '1_3b5' '1_3f1' '1_3f3' '1_3c'
209> dsq: = (oc: - boc:)**2
210> enddot
211> set iteration = iteration + 1
212> dsq = dsq1_3z + dsq1_3b1 + dsq1_3b3 + dsq1_3b5 + dsq1_3f1 + dsq1_3f3 + dsq1_3c
213> teststat = sum(dsq)
214> print teststat
215> if (iteration .gt. 10) set teststat = -3
217> until (teststat<0.00000001)
```

Nonlinear Least Squares

Convergence achieved after 13 iterations.

Equation EZ

Dependent variable is PCT1_3Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.220851	.102445	2.15579	.039
MU_Z0	.264997E-02	.176885E-02	1.49813	.145
MU_ZW	.160801E-03	.917341E-04	1.75290	.090
MU_ZT	.670625E-04	.631572E-04	1.06183	.297
SIGZ	.200786E-02	.789616E-03	2.54283	.016

R-Squared= .99367 No. obs= 35
R-Bar-Squared (adj) = .99282
Durbin-Watson (0 gaps) = 1.462554
Sum of squared residuals = .228151E-03
Std. error of regression = .275772E-02
Sum of residuals = .117160E-01
Mean of dependent variable = .253280E-01
Log of likelihood function = 159.302

*** WARNING 190: Transformation at line 139.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 13 iterations.

Equation EB1

Dependent variable is PCT1_3B1

Variable	Coefficient	Std Err	T-stat	Signf
AB1_M	.116054	.765435E-03	151.618	.000
MU_B10	-.107466	.772610E-01	-1.39095	.175
MU_B1F	.349138E-01	.123264E-01	2.83244	.008
MU_B1W	.594740E-01	.285677E-01	2.08187	.047
MU_B1S	.189565E-01	.195737E-01	.968467	.341
MU_B1T	.158420E-01	.143989E-01	1.10023	.281
SIGB1	.561411E-01	.466491E-01	1.20348	.239

R-Squared= .99913 No. obs= 35
R-Bar-Squared (adj) = .99894
Durbin-Watson (0 gaps) = 2.091247
Sum of squared residuals = .928186E-04
Std. error of regression = .182070E-02
Sum of residuals = -.275098E-05
Mean of dependent variable = .629492E-01
Log of likelihood function = 175.041

*** WARNING 190: Transformation at line 149.
*** Divide by zero detected.
*** Result set to zero.
Occurs 15 times.

*** WARNING 191: Transformation at line 149.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 4 times.

Nonlinear Least Squares

Convergence achieved after 11 iterations.

Equation EB3

Dependent variable is PCT1_3B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3C	.418266	.252219E-01	16.5834	.000
AB3_M	.702309E-01	.227715E-01	3.08416	.005
MU_B3C	.326236E-02	.151048E-02	2.15982	.039
MU_B3F	-.160084E-03	.360622E-03	-.443911	.661
MU_B3T	.950598E-03	.268949E-03	3.53449	.001
MU_B3TM	.831006E-03	.357737E-03	2.32295	.028
SIGB3	.918276E-02	.265522E-02	3.45838	.002

R-Squared= .99769 No. obs= 35
R-Bar-Squared (adj) = .99720
Durbin-Watson (0 gaps) = 1.389661
Sum of squared residuals = .593882E-03
Std. error of regression = .460544E-02
Sum of residuals = .607684E-04
Mean of dependent variable = .408147
Log of likelihood function = 142.560

*** WARNING 191: Transformation at line 159.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 6 iterations.

Equation EB5

Dependent variable is PCT1_3B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.311344	.963884E-02	32.3010	.000
MU_B50	.148596E-01	.248882E-02	5.97052	.000
MU_B5S	.250784E-02	.140319E-02	1.78723	.085
MU_B5T	.443855E-02	.127445E-02	3.48271	.002
MU_B5MT	-.669164E-03	.448576E-03	-1.49175	.147
MU_B5MC	.607107E-01	.108491E-01	5.59590	.000
SIGB5	.396327E-01	.120399E-01	3.29178	.003

R-Squared= .98842 No. obs= 35
R-Bar-Squared (adj) = .98594
Durbin-Watson (0 gaps) = 1.921990
Sum of squared residuals = .572108E-03
Std. error of regression = .452022E-02
Sum of residuals = .191693E-04
Mean of dependent variable = .236425
Log of likelihood function = 143.214

Nonlinear Least Squares

Convergence achieved after 16 iterations.

Equation EF1

Dependent variable is PCT1_3F1

Variable	Coefficient	Std Err	T-stat	Signf
AF10	.890642E-03	.251477E-03	3.54164	.001
AF1M	.192067E-02	.673334E-03	2.85247	.008
MU_F10	.109544E-01	.390305E-02	2.80663	.009
MU_F1S	-.203798E-02	.998520E-03	-2.04100	.050
MU_F1T	-.190447E-03	.829713E-04	-2.29534	.029
SIGF1	.402493E-02	.220897E-02	1.82209	.079

R-Squared= .72679 No. obs= 35
R-Bar-Squared (adj) = .67968
Durbin-Watson (0 gaps) = 1.291182
Sum of squared residuals = .195092E-05
Std. error of regression = .259371E-03

Sum of residuals = -.561148E-04
Mean of dependent variable = .107330E-02
Log of likelihood function = 242.632

*** WARNING 191: Transformation at line 179.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 3 times.

Nonlinear Least Squares

No improvement in fit after 301 iterations.

Equation EF3

Dependent variable is PCT1_3F3

Variable	Coefficient	Std Err	T-stat	Signf
AF30	.555316	551.046	.100775E-02	.999
AF3M	.444650	440.999	.100828E-02	.999
MU_F30	.410288	62.2584	.659008E-02	.995
MU_F3F	.428062E-03	.563473E-02	.759684E-01	.940
MU_F3T	.543178E-02	.204297E-01	.265876	.792
SIGF3	.599921E-01	.409229	.146598	.884

R-Squared= .83786 No. obs= 35
R-Bar-Squared (adj) = .80991
Durbin-Watson (0 gaps) = .611690
Sum of squared residuals = .576553E-04
Std. error of regression = .141000E-02
Sum of residuals = -.121872E-02
Mean of dependent variable = .446507E-02
Log of likelihood function = 183.374

Nonlinear Least Squares

Convergence achieved after 16 iterations.

Equation EC

Dependent variable is PCT1_3C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.116466	.573731E-01	2.02997	.053
CPCT0	.419218	.425020E-01	9.86350	.000
CPCT1	.587756E-01	.279885E-01	2.09999	.046

MU_C0	-.148046E-01	.827789E-01	-.178845	.860
MU_CF	-.110311E-01	.118779E-01	-.928705	.362
MU_CW	-.977631E-02	.112029E-01	-.872659	.391
MU_CS	-.752926E-02	.875739E-02	-.859761	.398
MU_CT	.198864E-02	.236778E-02	.839874	.409
MU_C94	-.352274E-01	.400546E-01	-.879485	.388
BC	3.56062	1.57506	2.26062	.033

R-Squared= .99370 No. obs= 35
R-Bar-Squared (adj) = .99143
Durbin-Watson (0 gaps) = 1.206175
Sum of squared residuals = .152998E-03
Std. error of regression = .247385E-02
Sum of residuals = .410214E-04
Mean of dependent variable = .516832E-01
Log of likelihood function = 166.295

Constant TESTSTAT = .147388E-03

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EZ

Dependent variable is PCT1_3Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.210457	.919040E-01	2.28996	.029
MU_Z0	.238217E-02	.174125E-02	1.36808	.181
MU_ZW	.177034E-03	.100601E-03	1.75977	.089
MU_ZT	.907006E-04	.705527E-04	1.28557	.208
SIGZ	.209016E-02	.857076E-03	2.43871	.021

R-Squared= .99337 No. obs= 35
R-Bar-Squared (adj) = .99248
Durbin-Watson (0 gaps) = 1.444896
Sum of squared residuals = .239065E-03
Std. error of regression = .282291E-02
Sum of residuals = .118366E-01
Mean of dependent variable = .253280E-01
Log of likelihood function = 158.484

*** WARNING 190: Transformation at line 139.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 6 iterations.

Equation EB1

Dependent variable is PCT1_3B1

Variable	Coefficient	Std Err	T-stat	Signf
AB1_M	.116011	.754801E-03	153.698	.000
MU_B10	-.116523	.924930E-01	-1.25981	.218
MU_B1F	.359157E-01	.139546E-01	2.57374	.016
MU_B1W	.629408E-01	.343808E-01	1.83069	.078
MU_B1S	.185704E-01	.215848E-01	.860344	.397
MU_B1T	.179036E-01	.175730E-01	1.01882	.317
SIGB1	.618914E-01	.558140E-01	1.10889	.277

R-Squared= .99912 No. obs= 35
R-Bar-Squared (adj) = .99894
Durbin-Watson (0 gaps) = 2.099721
Sum of squared residuals = .933504E-04
Std. error of regression = .182591E-02
Sum of residuals = -.151359E-04
Mean of dependent variable = .629492E-01
Log of likelihood function = 174.941

*** WARNING 190: Transformation at line 149.
*** Divide by zero detected.
*** Result set to zero.
Occurs 15 times.

*** WARNING 191: Transformation at line 149.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 4 times.

Nonlinear Least Squares

Convergence achieved after 10 iterations.

Equation EB3

Dependent variable is PCT1_3B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.410734	.226266E-01	18.1527	.000
AB3_M	.779228E-01	.196775E-01	3.95999	.000

MU_B30	.297431E-02	.145477E-02	2.04453	.050
MU_B3F	-.164319E-03	.353413E-03	-.464949	.646
MU_B3T	.904658E-03	.280532E-03	3.22479	.003
MU_B3TM	.906678E-03	.347723E-03	2.60747	.014
SIGB3	.831728E-02	.287383E-02	2.89414	.007

R-Squared= .99757 No. obs= 35
R-Bar-Squared (adj) = .99704
Durbin-Watson (0 gaps) = 1.347764
Sum of squared residuals = .627039E-03
Std. error of regression = .473226E-02
Sum of residuals = .657880E-04
Mean of dependent variable = .408147
Log of likelihood function = 141.610

*** WARNING 191: Transformation at line 159.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB5

Dependent variable is PCT1_3B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.311032	.948982E-02	32.7754	.000
MU_B50	.148499E-01	.254330E-02	5.83882	.000
MU_B5S	.265232E-02	.144945E-02	1.82988	.078
MU_B5T	.460386E-02	.130646E-02	3.52391	.001
MU_B5MT	-.689690E-03	.464091E-03	-1.48611	.148
MU_B5MC	.626694E-01	.111260E-01	5.63269	.000
SIGB5	.410287E-01	.123428E-01	3.32409	.002

R-Squared= .98851 No. obs= 35
R-Bar-Squared (adj) = .98604
Durbin-Watson (0 gaps) = 1.901943
Sum of squared residuals = .567931E-03
Std. error of regression = .450369E-02
Sum of residuals = .208528E-04
Mean of dependent variable = .236425
Log of likelihood function = 143.342

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EF1

Dependent variable is PCT1_3F1

Variable	Coefficient	Std Err	T-stat	Signf
AF10	.894025E-03	.254314E-03	3.51544	.001
AF1M	.192468E-02	.678586E-03	2.83631	.008
MU_F10	.110376E-01	.391860E-02	2.81673	.009
MU_F1S	-.204958E-02	.997654E-03	-2.05440	.049
MU_F1T	-.196111E-03	.828816E-04	-2.36616	.025
SIGF1	.405004E-02	.221307E-02	1.83005	.078

R-Squared= .72647 No. obs= 35
R-Bar-Squared (adj) = .67931
Durbin-Watson (0 gaps) = 1.287820
Sum of squared residuals = .195321E-05
Std. error of regression = .259523E-03
Sum of residuals = -.561531E-04
Mean of dependent variable = .107330E-02
Log of likelihood function = 242.611

*** WARNING 191: Transformation at line 179.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 3 times.

Nonlinear Least Squares

No improvement in fit after 1 iterations.

Equation EF3

Dependent variable is PCT1_3F3

Variable	Coefficient	Std Err	T-stat	Signf
AF30	.555316	551.047	.100775E-02	.999
AF3M	.444650	441.000	.100828E-02	.999
MU_F30	.410288	62.2585	.659007E-02	.995
MU_F3F	.428062E-03	.563474E-02	.759684E-01	.940
MU_F3T	.543178E-02	.204298E-01	.265876	.792
SIGF3	.599921E-01	.409230	.146597	.884

R-Squared= .83786 No. obs= 35
R-Bar-Squared (adj) = .80991
Durbin-Watson (0 gaps) = .611690
Sum of squared residuals = .576553E-04

Std. error of regression = .141001E-02
Sum of residuals = -.121872E-02
Mean of dependent variable = .446507E-02
Log of likelihood function = 183.374

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EC

Dependent variable is PCT1_3C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.116483	.576203E-01	2.02156	.054
CPCT0	.419579	.424555E-01	9.88279	.000
CPCT1	.590693E-01	.279644E-01	2.11230	.045
MU_C0	-.147820E-01	.830707E-01	-.177944	.860
MU_CF	-.110282E-01	.118977E-01	-.926918	.363
MU_CW	-.977597E-02	.112214E-01	-.871191	.392
MU_CS	-.753056E-02	.877023E-02	-.858650	.399
MU_CT	.198986E-02	.237436E-02	.838062	.410
MU_C94	-.352279E-01	.401573E-01	-.877246	.389
BC	3.54030	1.56423	2.26328	.033

R-Squared= .99370 No. obs= 35
R-Bar-Squared (adj) = .99143
Durbin-Watson (0 gaps) = 1.206242
Sum of squared residuals = .153042E-03
Std. error of regression = .247421E-02
Sum of residuals = .403668E-04
Mean of dependent variable = .516832E-01
Log of likelihood function = 166.290

Constant TESTSTAT = .137366E-04

Nonlinear Least Squares

Convergence achieved after 6 iterations.

Equation EZ

Dependent variable is PCT1_3Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.225996	.111380	2.02905	.051

MU_Z0	.272221E-02	.211443E-02	1.28745	.208
MU_ZW	.184604E-03	.107150E-03	1.72286	.095
MU_ZT	.101173E-03	.769480E-04	1.31482	.199
SIGZ	.225856E-02	.950203E-03	2.37693	.024

R-Squared= .99330 No. obs= 35
R-Bar-Squared (adj) = .99241
Durbin-Watson (0 gaps) = 1.444026
Sum of squared residuals = .241356E-03
Std. error of regression = .283640E-02
Sum of residuals = .116793E-01
Mean of dependent variable = .253280E-01
Log of likelihood function = 158.317

*** WARNING 190: Transformation at line 139.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB1

Dependent variable is PCT1_3B1

Variable	Coefficient	Std Err	T-stat	Signf
AB1_M	.116009	.752932E-03	154.077	.000
MU_B10	-.116109	.925075E-01	-1.25513	.220
MU_B1F	.366826E-01	.139273E-01	2.63387	.014
MU_B1W	.635767E-01	.343525E-01	1.85072	.075
MU_B1S	.193329E-01	.215471E-01	.897240	.377
MU_B1T	.178557E-01	.175790E-01	1.01574	.318
SIGB1	.616915E-01	.558339E-01	1.10491	.279

R-Squared= .99913 No. obs= 35
R-Bar-Squared (adj) = .99894
Durbin-Watson (0 gaps) = 2.100632
Sum of squared residuals = .933251E-04
Std. error of regression = .182566E-02
Sum of residuals = -.145285E-04
Mean of dependent variable = .629492E-01
Log of likelihood function = 174.946

*** WARNING 190: Transformation at line 149.
*** Divide by zero detected.
*** Result set to zero.
Occurs 15 times.

```
*** WARNING 191: Transformation at line 149.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 4 times.
```

Nonlinear Least Squares

Convergence achieved after 4 iterations.

Equation EB3

Dependent variable is PCT1_3B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.410530	.225829E-01	18.1788	.000
AB3_M	.780954E-01	.196251E-01	3.97937	.000
MU_B30	.296465E-02	.145199E-02	2.04179	.051
MU_B3F	-.164332E-03	.352828E-03	-.465756	.645
MU_B3T	.901715E-03	.280328E-03	3.21664	.003
MU_B3TM	.902746E-03	.347526E-03	2.59764	.015
SIGB3	.827994E-02	.287349E-02	2.88149	.008

```
R-Squared=  .99756     No. obs=    35
R-Bar-Squared (adj)        =   .99704
Durbin-Watson (   0 gaps) =  1.347205
Sum of squared residuals =    .628223E-03
Std. error of regression =    .473672E-02
Sum of residuals =            .665894E-04
Mean of dependent variable =  .408147
Log of likelihood function =  141.576
```

```
*** WARNING 191: Transformation at line 159.
*** Tried to take log of zero or negative number.
*** Result set to zero.
```

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB5

Dependent variable is PCT1_3B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.311005	.947796E-02	32.8135	.000

MU_B5O	.148368E-01	.254392E-02	5.83228	.000
MU_B5S	.265795E-02	.145139E-02	1.83131	.078
MU_B5T	.460955E-02	.130777E-02	3.52476	.001
MU_B5MT	-.689201E-03	.464659E-03	-1.48324	.149
MU_B5MC	.627438E-01	.111370E-01	5.63382	.000
SIGB5	.410760E-01	.123552E-01	3.32461	.002

R-Squared= .98851 No. obs= 35
R-Bar-Squared (adj) = .98605
Durbin-Watson (0 gaps) = 1.901153
Sum of squared residuals = .567754E-03
Std. error of regression = .450299E-02
Sum of residuals = .209655E-04
Mean of dependent variable = .236425
Log of likelihood function = 143.348

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT1_3F1

Variable	Coefficient	Std Err	T-stat	Signf
AF1O	.894033E-03	.252675E-03	3.53827	.001
AF1M	.192371E-02	.672735E-03	2.85953	.008
MU_F1O	.110400E-01	.389800E-02	2.83223	.008
MU_F1S	-.205114E-02	.999576E-03	-2.05201	.049
MU_F1T	-.196306E-03	.829704E-04	-2.36597	.025
SIGF1	.404943E-02	.220423E-02	1.83712	.076

R-Squared= .72647 No. obs= 35
R-Bar-Squared (adj) = .67931
Durbin-Watson (0 gaps) = 1.287553
Sum of squared residuals = .195321E-05
Std. error of regression = .259523E-03
Sum of residuals = -.559889E-04
Mean of dependent variable = .107330E-02
Log of likelihood function = 242.611

*** WARNING 191: Transformation at line 179.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 3 times.

Nonlinear Least Squares

No improvement in fit after 1 iterations.

Equation EF3

Dependent variable is PCT1_3F3

Variable	Coefficient	Std Err	T-stat	Signf
AF30	.555316	551.047	.100775E-02	.999
AF3M	.444650	441.000	.100828E-02	.999
MU_F30	.410288	62.2585	.659007E-02	.995
MU_F3F	.428062E-03	.563474E-02	.759684E-01	.940
MU_F3T	.543178E-02	.204298E-01	.265876	.792
SIGF3	.599921E-01	.409230	.146597	.884

R-Squared= .83786 No. obs= 35
R-Bar-Squared (adj) = .80991
Durbin-Watson (0 gaps) = .611690
Sum of squared residuals = .576553E-04
Std. error of regression = .141001E-02
Sum of residuals = -.121872E-02
Mean of dependent variable = .446507E-02
Log of likelihood function = 183.374

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EC

Dependent variable is PCT1_3C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.116491	.576175E-01	2.02180	.054
CPCT0	.419585	.424390E-01	9.88678	.000
CPCT1	.590794E-01	.279700E-01	2.11224	.045
MU_C0	-.147709E-01	.830716E-01	-.177810	.860
MU_CF	-.110267E-01	.118982E-01	-.926756	.363
MU_CW	-.977466E-02	.112219E-01	-.871034	.392
MU_CS	-.752966E-02	.877044E-02	-.858527	.399
MU_CT	.198961E-02	.237457E-02	.837883	.410
MU_C94	-.352229E-01	.401609E-01	-.877044	.389
BC	3.53937	1.56380	2.26331	.033

R-Squared= .99370 No. obs= 35
R-Bar-Squared (adj) = .99143
Durbin-Watson (0 gaps) = 1.206253
Sum of squared residuals = .153044E-03
Std. error of regression = .247422E-02

```
        Sum of residuals =             .403445E-04
        Mean of dependent variable =  .516832E-01
        Log of likelihood function =  166.290

Constant TESTSTAT =    .163287E-07

          Nonlinear Least Squares

Convergence achieved after 2 iterations.

          Equation EZ

          Dependent variable is PCT1_3Z
```

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.226786	.112381	2.01802	.053
MU_Z0	.273990E-02	.213308E-02	1.28448	.209
MU_ZW	.185015E-03	.107458E-03	1.72174	.095
MU_ZT	.101737E-03	.772433E-04	1.31710	.198
SIGZ	.226702E-02	.954557E-03	2.37495	.024

```
       R-Squared=  .99330      No. obs=     35
       R-Bar-Squared (adj)          =   .99241
       Durbin-Watson (   0 gaps) =  1.444011
       Sum of squared residuals =     .241453E-03
       Std. error of regression =     .283697E-02
       Sum of residuals =             .116710E-01
       Mean of dependent variable =  .253280E-01
       Log of likelihood function =  158.310

*** WARNING 190: Transformation at line 139.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.

          Nonlinear Least Squares

Convergence achieved after 1 iterations.

          Equation EB1

          Dependent variable is PCT1_3B1
```

Variable	Coefficient	Std Err	T-stat	Signf
AB1_M	.116009	.752952E-03	154.073	.000

MU_B10	-.116101	.924281E-01	-1.25612	.219
MU_B1F	.367085E-01	.139101E-01	2.63897	.013
MU_B1W	.635989E-01	.343061E-01	1.85387	.074
MU_B1S	.193545E-01	.215465E-01	.898266	.377
MU_B1T	.178553E-01	.175614E-01	1.01674	.318
SIGB1	.616887E-01	.557828E-01	1.10587	.278

R-Squared= .99913 No. obs= 35
R-Bar-Squared (adj) = .99894
Durbin-Watson (0 gaps) = 2.100654
Sum of squared residuals = .933272E-04
Std. error of regression = .182568E-02
Sum of residuals = -.145831E-04
Mean of dependent variable = .629492E-01
Log of likelihood function = 174.945

*** WARNING 190: Transformation at line 149.
*** Divide by zero detected.
*** Result set to zero.
Occurs 15 times.

*** WARNING 191: Transformation at line 149.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 4 times.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB3

Dependent variable is PCT1_3B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.410471	.226047E-01	18.1587	.000
AB3_M	.781366E-01	.196442E-01	3.97758	.000
MU_B30	.296532E-02	.145394E-02	2.03951	.051
MU_B3F	-.164294E-03	.353060E-03	-.465342	.645
MU_B3T	.901258E-03	.280626E-03	3.21160	.003
MU_B3TM	.902579E-03	.347671E-03	2.59607	.015
SIGB3	.827168E-02	.287528E-02	2.87683	.008

R-Squared= .99756 No. obs= 35
R-Bar-Squared (adj) = .99704
Durbin-Watson (0 gaps) = 1.347539
Sum of squared residuals = .628259E-03
Std. error of regression = .473686E-02
Sum of residuals = .669990E-04
Mean of dependent variable = .408147

Log of likelihood function = 141.576

*** WARNING 191: Transformation at line 159.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB5

Dependent variable is PCT1_3B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.310996	.947468E-02	32.8239	.000
MU_B50	.148347E-01	.254326E-02	5.83295	.000
MU_B5S	.265891E-02	.145128E-02	1.83211	.078
MU_B5T	.461037E-02	.130747E-02	3.52617	.001
MU_B5MT	-.688916E-03	.464639E-03	-1.48269	.149
MU_B5MC	.627530E-01	.111339E-01	5.63619	.000
SIGB5	.410809E-01	.123530E-01	3.32557	.002

R-Squared= .98851 No. obs= 35
R-Bar-Squared (adj) = .98605
Durbin-Watson (0 gaps) = 1.901027
Sum of squared residuals = .567720E-03
Std. error of regression = .450286E-02
Sum of residuals = .210528E-04
Mean of dependent variable = .236425
Log of likelihood function = 143.349

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT1_3F1

Variable	Coefficient	Std Err	T-stat	Signf
AF10	.894066E-03	.252461E-03	3.54140	.001
AF1M	.192348E-02	.671525E-03	2.86434	.008
MU_F10	.110411E-01	.389426E-02	2.83521	.008
MU_F1S	-.205172E-02	.999991E-03	-2.05173	.049
MU_F1T	-.196363E-03	.830046E-04	-2.36569	.025

SIGF1	.404952E-02	.220245E-02	1.83864	.076

R-Squared= .72647 No. obs= 35
R-Bar-Squared (adj) = .67931
Durbin-Watson (0 gaps) = 1.287473
Sum of squared residuals = .195321E-05
Std. error of regression = .259523E-03
Sum of residuals = -.559718E-04
Mean of dependent variable = .107330E-02
Log of likelihood function = 242.611

*** WARNING 191: Transformation at line 179.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 3 times.

Nonlinear Least Squares

No improvement in fit after 1 iterations.

Equation EF3

Dependent variable is PCT1_3F3

Variable	Coefficient	Std Err	T-stat	Signf
AF30	.555316	551.047	.100775E-02	.999
AF3M	.444650	441.000	.100828E-02	.999
MU_F30	.410288	62.2585	.659007E-02	.995
MU_F3F	.428062E-03	.563474E-02	.759684E-01	.940
MU_F3T	.543178E-02	.204298E-01	.265876	.792
SIGF3	.599921E-01	.409230	.146597	.884

R-Squared= .83786 No. obs= 35
R-Bar-Squared (adj) = .80991
Durbin-Watson (0 gaps) = .611690
Sum of squared residuals = .576553E-04
Std. error of regression = .141001E-02
Sum of residuals = -.121872E-02
Mean of dependent variable = .446507E-02
Log of likelihood function = 183.374

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EC

Dependent variable is PCT1_3C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.116476	.576381E-01	2.02082	.054
CPCT0	.419592	.424570E-01	9.88274	.000
CPCT1	.590771E-01	.279646E-01	2.11257	.045
MU_C0	-.147923E-01	.830857E-01	-.178036	.860
MU_CF	-.110297E-01	.118978E-01	-.927036	.363
MU_CW	-.977747E-02	.112215E-01	-.871315	.392
MU_CS	-.753168E-02	.877023E-02	-.858778	.399
MU_CT	.199022E-02	.237438E-02	.838205	.410
MU_C94	-.352333E-01	.401579E-01	-.877370	.389
BC	3.53930	1.56372	2.26338	.033

R-Squared= .99370 No. obs= 35
R-Bar-Squared (adj) = .99143
Durbin-Watson (0 gaps) = 1.206234
Sum of squared residuals = .153044E-03
Std. error of regression = .247422E-02
Sum of residuals = .403902E-04
Mean of dependent variable = .516832E-01
Log of likelihood function = 166.290

Constant TESTSTAT = .264894E-09

```
218> print teststat iteration
```

Constant TESTSTAT = .264894E-09

Constant ITERATION = 4.00000

```
219> !
219> a1_3z = az*(1-mc95)
220> a1_3b1 = ab1_m*mc95
221> a1_3b3 = ab30 + ab3_m*mc95
222> a1_3b5 = ab5
223> a1_3f1 = (af10+af1m*mc95)
224> a1_3f3 = (af30+af3m*mc95)
225> a1_3c = ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95
226> mu1_3z = sigz*ln((a1_3z/pct1_3z)-1) + d1_3z
```

*** WARNING 190: Transformation at line 226.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

```
227> mu1_3b1 = sigb1*ln((a1_3b1/pct1_3b1)-1) + d1_3b1
```

*** WARNING 190: Transformation at line 227.
*** Divide by zero detected.

```
   *** Result set to zero.
       Occurs 15 times.

   *** WARNING 191: Transformation at line 227.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.
       Occurs 4 times.

228> mu1_3b3 = sigb3*ln((a1_3b3/pct1_3b3)-1) + d1_3b3


   *** WARNING 191: Transformation at line 228.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.

229> mu1_3b5 = sigb5*ln((a1_3b5/pct1_3b5)-1) + d1_3b5
230> mu1_3f1 = sigf1*ln((a1_3f1/pct1_3f1)-1) + d1_3f1


   *** WARNING 191: Transformation at line 230.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.
       Occurs 3 times.

231> mu1_3f3 = sigf3*ln((a1_3f3/pct1_3f3)-1) + d1_3f3
232> mu1_3c = sigc*ln((a1_3c/pct1_3c)-1) + d1_3c
233> dot z b1 b3 b5 f1 f3 c
234> set sig1_3: = sig:
235> enddot


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3Z as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3B1 as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3B3 as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3B5 as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3F1 as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3F3 as different type of item.


   *** WARNING 198: Command SET at line 234.
   *** Redefined SIG1_3C as different type of item.
```

```
236> dot '1_3z' '1_3b1' '1_3b3' '1_3b5' '1_3f1' '1_3f3' '1_3c'
237> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
238> zpct = 1 / (1 + exp(mu:/sig:))
239> gzpct = (napct-zpct)/napct
240> lzpct = 1 - gzpct
241> totbar = d: + sig:*log(1 - napct)/napct
242> lzbar = sig:*log(1 - zpct)/zpct
243> ubar = (totbar - lzbar*lzpct)
244> revise oc: = (d: - ubar)*pct:
245> enddot
246> !
246> fpct1_3z = (az*(1-mc95)) /
(1+exp(-(d1_3z-(mu_z0+mu_zf*fall+mu_zw*winter+mu_zs*spring+mu_zt*t+oc1_3b3+oc1_3b5))
/ ...
246> sigz))
247> fpct1_3b1 = ab1_m*mc95 / ...
247>
(1+exp(-(d1_3b1-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t_mc95+oc1_3b
3)) / ...
247> sigb1))
248> fpct1_3b3 = (ab30+ab3_m*mc95) / ...
248>
(1+exp(-(d1_3b3-(mu_b30+mu_b3f*fall+mu_b3f*winter+mu_b3f*spring-mu_b3t*t+mu_b3tm*t_m
c95-mu_b3mc*mc95+oc1_3z+oc1_3b1+oc1_3b5)) / ...
248> sigb3))
249> fpct1_3b5 = ab5 / ...
249>
(1+exp(-(d1_3b5-(mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_m
c95+mu_b5mc*mc95+oc1_3z+oc1_3b3)) / ...
249> sigb5))
250> fpct1_3f1 = (af10+af1m*mc95) / ...
250>
(1+exp(-(d1_3f1-(mu_f10+mu_f1f*fall+mu_f1f*winter+mu_f1s*spring+mu_f1t*t-mu_f1m*mc95
-mu_f1tm*t_mc95+oc1_3f3)) ...
250> / sigf1))
251> fpct1_3f3 = (af30+af3m*mc95) / ...
251>
(1+exp(-(d1_3f3-(mu_f30-mu_f3f*fall-mu_f3f*winter-mu_f3s*spring-mu_f3t*t-mu_f3m*mc95
+mu_f3t*t_mc95+oc1_3f1)) ...
251> / sigf3))
252> fpct1_3c = (ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95) / ...
252>
(1+exp(-(d1_3c-(mu_c0+mu_cf*fall+mu_cw*winter+mu_cs*spring+mu_ct*t+mu_c94*d94+mu_cm*
mc95+bc*mc95*oc1_3b5)) ...
252> / sigc))
253> !
253> pct1_3b = pct1_3b1 + pct1_3b3 + pct1_3b5
254> pct1_3f = pct1_3f1 + pct1_3f3
255> fpct1_3b = fpct1_3b1 + fpct1_3b3 + fpct1_3b5
256> fpct1_3f = fpct1_3f1 + fpct1_3f3
257> !
257> pct1_3n = 1 - pct1_3z - pct1_3b - pct1_3f - pct1_3c
258> fpct1_3n = 1 - fpct1_3z - fpct1_3b - fpct1_3f - fpct1_3c
259> !
259> dot '1_3f1' '1_3f3' '1_3n' '1_3b1' '1_3b3' '1_3b5' '1_3z' '1_3c' '1_3b' '1_3f'
260> ape: = sum(abs(fpct:/pct:-1)*pct:)
261> denom: = sum(pct:)
```

```
262> set mape: = ape: / denom:
263> enddot


  *** WARNING 241: Transformation at line 260.
  *** Divide by zero.  Result set to zero.
      Occurs 15 times.


  *** WARNING 241: Transformation at line 260.
  *** Divide by zero.  Result set to zero.
      Occurs 19 times.


264> print pct1_3n fpct1_3n

                          PCT1_3N        FPCT1_3N

  1993Q1                .409555        .407586
  1993Q2                .397938        .405300
  1993Q3                .397003        .387102
  1993Q4                .387825        .384773
  1994Q1                .368833        .373120
  1994Q2                .352259        .354514
  1994Q3                .339480        .347565
  1994Q4                .332980        .343570
  1995Q1                .334701        .324099
  1995Q2                .320492        .310022
  1995Q3                .310366        .301293
  1995Q4                .303075        .294235
  1996Q1                .281446        .285274
  1996Q2                .273016        .279658
  1996Q3                .267480        .275654
  1996Q4                .214357        .222699
  1997Q1                .162567        .151190
  1997Q2                .149507        .150462
  1997Q3                .140452        .139796
  1997Q4                .126339        .131413
  1998Q1                .119749        .125765
  1998Q2                .119541        .122136
  1998Q3                .114186        .116928
  1998Q4                .109182        .113772
  1999Q1                .108121        .107425
  1999Q2                .107842        .998767E-01
  1999Q3                .899894E-01    .977007E-01
  1999Q4                .902584E-01    .955873E-01
  2000Q1                .945921E-01    .901517E-01
  2000Q2                .985245E-01    .886650E-01
  2000Q3                .923768E-01    .923952E-01
  2000Q4                .869447E-01    .916462E-01
  2001Q1                .826280E-01    .880057E-01
  2001Q2                .850045E-01    .812375E-01
  2001Q3                .788957E-01    .773243E-01

265> print mape1_3n
```

```
  Constant MAPE1_3N =    .270722E-01

266> page
267> print pct1_3z fpct1_3z
```

	PCT1_3Z	FPCT1_3Z
1993Q1	.953649E-01	.100375
1993Q2	.886339E-01	.865627E-01
1993Q3	.957779E-01	.921275E-01
1993Q4	.828564E-01	.803463E-01
1994Q1	.700668E-01	.705242E-01
1994Q2	.599483E-01	.604079E-01
1994Q3	.601788E-01	.581077E-01
1994Q4	.483047E-01	.498559E-01
1995Q1	.488761E-01	.487145E-01
1995Q2	.410804E-01	.455659E-01
1995Q3	.410510E-01	.452783E-01
1995Q4	.420489E-01	.413656E-01
1996Q1	.349500E-01	.352920E-01
1996Q2	.332628E-01	.305466E-01
1996Q3	.323375E-01	.295609E-01
1996Q4	.117418E-01	.267796E-03
1997Q1	0.00000	0.00000
1997Q2	0.00000	0.00000
1997Q3	0.00000	0.00000
1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000
1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
268> print mape1_3z

  Constant MAPE1_3Z =    .503657E-01

269> page
270> print pct1_3b1 fpct1_3b1
```

	PCT1_3B1	FPCT1_3B1
1993Q1	0.00000	0.00000
1993Q2	0.00000	0.00000

1993Q3	0.00000	0.00000
1993Q4	0.00000	0.00000
1994Q1	0.00000	0.00000
1994Q2	0.00000	0.00000
1994Q3	0.00000	0.00000
1994Q4	0.00000	0.00000
1995Q1	0.00000	0.00000
1995Q2	0.00000	0.00000
1995Q3	0.00000	0.00000
1995Q4	0.00000	0.00000
1996Q1	0.00000	0.00000
1996Q2	0.00000	0.00000
1996Q3	0.00000	0.00000
1996Q4	.656519E-01	.657046E-01
1997Q1	.997307E-01	.100632
1997Q2	.992337E-01	.983468E-01
1997Q3	.108367	.108816
1997Q4	.111247	.111899
1998Q1	.112827	.110568
1998Q2	.108244	.109800
1998Q3	.114179	.113682
1998Q4	.115626	.114670
1999Q1	.114905	.114223
1999Q2	.114002	.113995
1999Q3	.117710	.115256
1999Q4	.120104	.115586
2000Q1	.113332	.115458
2000Q2	.110230	.115359
2000Q3	.115528	.115774
2000Q4	.115834	.115879
2001Q1	.117352	.115831
2001Q2	.111428	.115817
2001Q3	.117692	.115943

```
271> print mape1_3b1


  Constant MAPE1_3B1 =    .141035E-01

272> page
273> print pct1_3b3 fpct1_3b3
```

	PCT1_3B3	FPCT1_3B3
1993Q1	.255624	.257580
1993Q2	.273207	.266722
1993Q3	.271497	.277586
1993Q4	.281141	.282581
1994Q1	.295664	.291899
1994Q2	.301805	.299695
1994Q3	.311524	.307214
1994Q4	.313268	.310859
1995Q1	.317050	.320654
1995Q2	.321033	.330437
1995Q3	.333022	.337842
1995Q4	.340380	.342482

1996Q1	.346235	.347865
1996Q2	.360136	.353955
1996Q3	.364979	.358334
1996Q4	.440981	.443563
1997Q1	.480513	.484185
1997Q2	.482556	.483736
1997Q3	.483348	.483345
1997Q4	.489597	.482846
1998Q1	.483313	.482311
1998Q2	.482150	.482020
1998Q3	.480363	.481671
1998Q4	.486038	.481399
1999Q1	.484273	.481349
1999Q2	.480983	.481940
1999Q3	.483014	.481855
1999Q4	.485586	.481596
2000Q1	.479658	.480877
2000Q2	.482476	.481098
2000Q3	.479308	.480210
2000Q4	.481127	.479453
2001Q1	.482532	.479776
2001Q2	.478835	.482312
2001Q3	.471926	.483815

```
274> print mape1_3b3


  Constant MAPE1_3B3 =    .815807E-02

275> page
276> print pct1_3b5 fpct1_3b5
```

	PCT1_3B5	FPCT1_3B5
1993Q1	.160725	.154015
1993Q2	.166199	.162298
1993Q3	.156906	.165802
1993Q4	.174723	.179165
1994Q1	.185105	.187237
1994Q2	.193191	.195361
1994Q3	.198186	.198479
1994Q4	.217574	.210686
1995Q1	.212356	.217956
1995Q2	.230087	.225868
1995Q3	.234786	.228716
1995Q4	.237100	.238732
1996Q1	.250515	.244607
1996Q2	.244188	.249962
1996Q3	.249225	.252069
1996Q4	.215026	.214589
1997Q1	.216098	.221097
1997Q2	.225984	.225477
1997Q3	.228172	.226574
1997Q4	.233913	.234632
1998Q1	.244078	.240954
1998Q2	.251371	.246538

1998Q3	.252977	.248752
1998Q4	.252919	.253331
1999Q1	.254919	.258526
1999Q2	.259182	.266065
1999Q3	.271038	.267929
1999Q4	.270515	.272181
2000Q1	.277344	.277108
2000Q2	.274665	.278949
2000Q3	.279910	.280322
2000Q4	.284522	.283987
2001Q1	.285217	.285795
2001Q2	.290949	.289493
2001Q3	.295226	.291616

```
277> print mape1_3b5


  Constant MAPE1_3B5 =    .138622E-01

278> page
279> print pct1_3b fpct1_3b
```

	PCT1_3B	FPCT1_3B
1993Q1	.416349	.411595
1993Q2	.439406	.429020
1993Q3	.428403	.443387
1993Q4	.455865	.461746
1994Q1	.480769	.479136
1994Q2	.494996	.495057
1994Q3	.509711	.505693
1994Q4	.530842	.521546
1995Q1	.529406	.538610
1995Q2	.551120	.556305
1995Q3	.567808	.566557
1995Q4	.577480	.581214
1996Q1	.596750	.592472
1996Q2	.604324	.603917
1996Q3	.614204	.610403
1996Q4	.721659	.723857
1997Q1	.796342	.805914
1997Q2	.807774	.807560
1997Q3	.819887	.818735
1997Q4	.834757	.829377
1998Q1	.840218	.833833
1998Q2	.841765	.838358
1998Q3	.847518	.844106
1998Q4	.854584	.849400
1999Q1	.854097	.854098
1999Q2	.854166	.862000
1999Q3	.871762	.865040
1999Q4	.876204	.869363
2000Q1	.870335	.873443
2000Q2	.867370	.875406
2000Q3	.874746	.876306
2000Q4	.881483	.879319
2001Q1	.885102	.881402

```
  2001Q2                .881212        .887622
  2001Q3                .884843        .891375

280> print mape1_3b


  Constant MAPE1_3B =    .681194E-02

281> page
282> print pct1_3f1 fpct1_3f1


                                        FPCT1_3F
                          PCT1_3F1      1

  1993Q1                .343532E-03    .694512E-03
  1993Q2                .493136E-03    .703550E-03
  1993Q3                .125402E-02    .771335E-03
  1993Q4                .650472E-03    .711880E-03
  1994Q1                .771058E-03    .715318E-03
  1994Q2                .782524E-03    .720205E-03
  1994Q3                .928013E-03    .783846E-03
  1994Q4                .551824E-03    .727173E-03
  1995Q1                .535672E-03    .730566E-03
  1995Q2                .645941E-03    .757212E-03
  1995Q3                .640593E-03    .813356E-03
  1995Q4                .509111E-03    .770682E-03
  1996Q1                .842397E-03    .773547E-03
  1996Q2                .868754E-03    .776680E-03
  1996Q3                .127512E-02    .820885E-03
  1996Q4                .194505E-02    .164258E-02
  1997Q1                .107996E-02    .900311E-03
  1997Q2                .124890E-02    .929656E-03
  1997Q3                .156562E-02    .129831E-02
  1997Q4                .873007E-03    .985177E-03
  1998Q1                .838266E-03    .101287E-02
  1998Q2                .825041E-03    .104412E-02
  1998Q3                .131531E-02    .142016E-02
  1998Q4                .125341E-02    .110562E-02
  1999Q1                .975236E-03    .113311E-02
  1999Q2                .892962E-03    .115691E-02
  1999Q3                .131284E-02    .153683E-02
  1999Q4                .102610E-02    .121326E-02
  2000Q1                .117713E-02    .123763E-02
  2000Q2                .105094E-02    .126694E-02
  2000Q3                .175108E-02    .164031E-02
  2000Q4                .189560E-02    .132058E-02
  2001Q1                .137235E-02    .134488E-02
  2001Q2                .202507E-02    .181982E-02
  2001Q3                .204949E-02    .234165E-02

283> print mape1_3f1


  Constant MAPE1_3F1 =    .187566

284> page
285> print pct1_3f3 fpct1_3f3
```

	PCT1_3F3	FPCT1_3F3
1993Q1	.706168E-03	.782388E-03
1993Q2	.552869E-03	.856995E-03
1993Q3	.404911E-03	.929693E-03
1993Q4	.558000E-03	.101671E-02
1994Q1	.825138E-03	.111899E-02
1994Q2	.193982E-02	.122396E-02
1994Q3	.846370E-03	.132840E-02
1994Q4	.920748E-03	.145109E-02
1995Q1	.107188E-02	.159711E-02
1995Q2	.247949E-02	.176809E-02
1995Q3	.153427E-02	.192669E-02
1995Q4	.152037E-02	.210576E-02
1996Q1	.236260E-02	.231782E-02
1996Q2	.225129E-02	.253324E-02
1996Q3	.222959E-02	.274715E-02
1996Q4	.390410E-02	.486769E-02
1997Q1	.622365E-02	.630511E-02
1997Q2	.502599E-02	.628998E-02
1997Q3	.485668E-02	.623531E-02
1997Q4	.528402E-02	.622901E-02
1998Q1	.542513E-02	.626300E-02
1998Q2	.531260E-02	.626044E-02
1998Q3	.668540E-02	.621083E-02
1998Q4	.484263E-02	.620167E-02
1999Q1	.553400E-02	.623669E-02
1999Q2	.615997E-02	.682449E-02
1999Q3	.654131E-02	.723144E-02
1999Q4	.625513E-02	.721307E-02
2000Q1	.717244E-02	.723811E-02
2000Q2	.718575E-02	.721623E-02
2000Q3	.912806E-02	.713301E-02
2000Q4	.828086E-02	.711834E-02
2001Q1	.959988E-02	.714940E-02
2001Q2	.936574E-02	.763006E-02
2001Q3	.132905E-01	.793810E-02

```
286> print mape1_3f3


  Constant MAPE1_3F3 =    .195193

287> page
288> print pct1_3f fpct1_3f
```

	PCT1_3F	FPCT1_3F
1993Q1	.104970E-02	.147690E-02
1993Q2	.104600E-02	.156055E-02
1993Q3	.165893E-02	.170103E-02
1993Q4	.120847E-02	.172859E-02
1994Q1	.159620E-02	.183431E-02
1994Q2	.272235E-02	.194417E-02

1994Q3	.177438E-02	.211225E-02
1994Q4	.147257E-02	.217827E-02
1995Q1	.160755E-02	.232767E-02
1995Q2	.312543E-02	.252531E-02
1995Q3	.217487E-02	.274004E-02
1995Q4	.202949E-02	.287644E-02
1996Q1	.320500E-02	.309136E-02
1996Q2	.312004E-02	.330992E-02
1996Q3	.350470E-02	.356804E-02
1996Q4	.584915E-02	.651026E-02
1997Q1	.730361E-02	.720543E-02
1997Q2	.627490E-02	.721964E-02
1997Q3	.642230E-02	.753362E-02
1997Q4	.615702E-02	.721419E-02
1998Q1	.626340E-02	.727587E-02
1998Q2	.613764E-02	.730456E-02
1998Q3	.800071E-02	.763099E-02
1998Q4	.609605E-02	.730729E-02
1999Q1	.650924E-02	.736981E-02
1999Q2	.705293E-02	.798141E-02
1999Q3	.785415E-02	.876826E-02
1999Q4	.728123E-02	.842632E-02
2000Q1	.834956E-02	.847575E-02
2000Q2	.823669E-02	.848317E-02
2000Q3	.108791E-01	.877332E-02
2000Q4	.101765E-01	.843892E-02
2001Q1	.109722E-01	.849429E-02
2001Q2	.113908E-01	.944988E-02
2001Q3	.153400E-01	.102798E-01

```
289> print mape1_3f


  Constant MAPE1_3F =    .164253

290> page
291> print pct1_3c fpct1_3c
```

	PCT1_3C	FPCT1_3C
1993Q1	.776820E-01	.789666E-01
1993Q2	.729764E-01	.775571E-01
1993Q3	.771573E-01	.756817E-01
1993Q4	.722450E-01	.714060E-01
1994Q1	.787354E-01	.753858E-01
1994Q2	.900744E-01	.880771E-01
1994Q3	.888566E-01	.865226E-01
1994Q4	.864003E-01	.828501E-01
1995Q1	.854093E-01	.862488E-01
1995Q2	.841821E-01	.855810E-01
1995Q3	.786005E-01	.841317E-01
1995Q4	.753665E-01	.803094E-01
1996Q1	.836485E-01	.838708E-01
1996Q2	.862775E-01	.825679E-01
1996Q3	.824734E-01	.808140E-01
1996Q4	.463928E-01	.466658E-01
1997Q1	.337873E-01	.356905E-01

```
  1997Q2                .364439E-01    .347583E-01
  1997Q3                .332387E-01    .339347E-01
  1997Q4                .327472E-01    .319950E-01
  1998Q1                .337694E-01    .331266E-01
  1998Q2                .325559E-01    .322010E-01
  1998Q3                .302946E-01    .313359E-01
  1998Q4                .301386E-01    .295213E-01
  1999Q1                .312724E-01    .311072E-01
  1999Q2                .309386E-01    .301418E-01
  1999Q3                .303947E-01    .284914E-01
  1999Q4                .262558E-01    .266237E-01
  2000Q1                .267238E-01    .279297E-01
  2000Q2                .258685E-01    .274462E-01
  2000Q3                .219979E-01    .225259E-01
  2000Q4                .213957E-01    .205964E-01
  2001Q1                .212981E-01    .220983E-01
  2001Q2                .223926E-01    .216909E-01
  2001Q3                .209211E-01    .210214E-01

292> print mape1_3c


  Constant MAPE1_3C =    .301990E-01

293> page
294> !
294> use 1976q4 2001q3
295> dot '1_3f1' '1_3f3' '1_3b1' '1_3b3' '1_3b5' '1_3z' '1_3c'
296> pct: = vol: / vol1_3ws
297> enddot
298> !
298> use 1976q4 2016q1
299> a1_3z = az*(1-mc95)
300> a1_3b1 = ab1_m*mc95
301> a1_3b3 = (ab30+ab3_m*mc95)
302> a1_3b5 = ab5
303> a1_3f1 = (af10+af1m*mc95)
304> a1_3f3 = (af30+af3m*mc95)
305> a1_3c = ac*(1-mc95)+(cpct0-cpct1*d00q3)*ac*mc95
306> mul_3z = sigz*ln((a1_3z/pct1_3z)-1) + d1_3z


  *** WARNING 190: Transformation at line 306.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 106 times.

  *** WARNING 191: Transformation at line 306.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 4 times.

307> mul_3b1 = sigb1*ln((a1_3b1/pct1_3b1)-1) + d1_3b1


  *** WARNING 190: Transformation at line 307.
  *** Divide by zero detected.
  *** Result set to zero.
```

```
      Occurs 138 times.

   *** WARNING 191: Transformation at line 307.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.
       Occurs 4 times.

308> mu1_3b3 = sigb3*ln((a1_3b3/pct1_3b3)-1) + d1_3b3


   *** WARNING 190: Transformation at line 308.
   *** Divide by zero detected.
   *** Result set to zero.
       Occurs 116 times.

   *** WARNING 191: Transformation at line 308.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.

309> mu1_3b5 = sigb5*ln((a1_3b5/pct1_3b5)-1) + d1_3b5


   *** WARNING 190: Transformation at line 309.
   *** Divide by zero detected.
   *** Result set to zero.
       Occurs 105 times.

310> mu1_3f1 = sigf1*ln((a1_3f1/pct1_3f1)-1) + d1_3f1


   *** WARNING 190: Transformation at line 310.
   *** Divide by zero detected.
   *** Result set to zero.
       Occurs 123 times.

   *** WARNING 191: Transformation at line 310.
   *** Tried to take log of zero or negative number.
   *** Result set to zero.
       Occurs 3 times.

311> mu1_3f3 = sigf3*ln((a1_3f3/pct1_3f3)-1) + d1_3f3


   *** WARNING 190: Transformation at line 311.
   *** Divide by zero detected.
   *** Result set to zero.
       Occurs 123 times.

312> mu1_3c = sigc*ln((a1_3c/pct1_3c)-1) + d1_3c


   *** WARNING 190: Transformation at line 312.
   *** Divide by zero detected.
   *** Result set to zero.
       Occurs 77 times.

313> !
313> dot '1_3z' '1_3b1' '1_3b3' '1_3b5' '1_3f1' '1_3f3' '1_3c'
```

```
314> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
315> zpct = 1 / (1 + exp(mu:/sig:))
316> gzpct = (napct-zpct)/napct
317> lzpct = 1 - gzpct
318> totbar = d: + sig:*log(1 - napct)/napct
319> lzbar = sig:*log(1 - zpct)/zpct
320> u: = (totbar - lzbar*lzpct)
321> enddot
322> use 1976q4 2001q3
323> ul_3ws = ul_3z*pct1_3z+ul_3b1*pct1_3b1+ul_3b3*pct1_3b3+ul_3b5*pct1_3b5+ ...
323> ul_3f1*pct1_3f1+ul_3f3*pct1_3f3+ul_3c*pct1_3c
324> revise px1_3wsu = ln(exp(px1_3ws)+ul_3ws)
325> !
325> pct1_3ws = exp(bgvol1_3ws) / exp(bgvol1_3)
326> ul_3 = pct1_3ws*ul_3ws
327> revise px1_3u = ln(exp(px1_3)+ul_3)
328> replace ul_3ws ul_3 px1_3wsu px1_3u
329> p pct1_3ws ul_3ws
```

	PCT1_3WS	UL_3WS
1976Q4	.163201E-01	0.00000
1977Q1	.231270E-01	0.00000
1977Q2	.352242E-01	0.00000
1977Q3	.381281E-01	0.00000
1977Q4	.462091E-01	0.00000
1978Q1	.380983E-01	0.00000
1978Q2	.504711E-01	0.00000
1978Q3	.522898E-01	0.00000
1978Q4	.676989E-01	0.00000
1979Q1	.651794E-01	0.00000
1979Q2	.772332E-01	0.00000
1979Q3	.966634E-01	0.00000
1979Q4	.106590	0.00000
1980Q1	.980184E-01	0.00000
1980Q2	.122625	0.00000
1980Q3	.112931	0.00000
1980Q4	.138180	0.00000
1981Q1	.124577	0.00000
1981Q2	.139655	0.00000
1981Q3	.163757	.446266E-05
1981Q4	.170288	.220994E-04
1982Q1	.152854	.309534E-04
1982Q2	.205252	.286900E-04
1982Q3	.187512	.283878E-04
1982Q4	.197255	.389100E-04
1983Q1	.189808	.420997E-04
1983Q2	.230247	.480321E-04
1983Q3	.215356	.494435E-04
1983Q4	.230650	.531208E-04
1984Q1	.213546	.488589E-04
1984Q2	.232958	.688904E-04
1984Q3	.246412	.992692E-04
1984Q4	.240592	.199120E-03
1985Q1	.230887	.336339E-03
1985Q2	.265210	.362604E-03
1985Q3	.253110	.432838E-03

1985Q4	.264251	.520926E-03
1986Q1	.247708	.547399E-03
1986Q2	.282784	.574931E-03
1986Q3	.274245	.557981E-03
1986Q4	.286673	.495618E-03
1987Q1	.264787	.422714E-03
1987Q2	.294645	.150244E-03
1987Q3	.294865	.377929E-03
1987Q4	.292574	.106731E-03
1988Q1	.286501	.115088E-03
1988Q2	.318966	.310098E-03
1988Q3	.316294	.122658E-03
1988Q4	.315789	.366786E-03
1989Q1	.319607	.345277E-03
1989Q2	.308765	.178296E-03
1989Q3	.324466	.271544E-03
1989Q4	.325004	.212971E-03
1990Q1	.308786	.390526E-03
1990Q2	.331370	.287052E-03
1990Q3	.338125	.381887E-03
1990Q4	.339564	.174714E-03
1991Q1	.311544	.355069E-03
1991Q2	.347602	.512657E-03
1991Q3	.342042	.961238E-03
1991Q4	.363978	.118202E-02
1992Q1	.367618	.125488E-02
1992Q2	.358900	.124138E-02
1992Q3	.375140	.125064E-02
1992Q4	.371444	.125396E-02
1993Q1	.349554	.127108E-02
1993Q2	.359759	.123359E-02
1993Q3	.367686	.123610E-02
1993Q4	.377478	.118483E-02
1994Q1	.365804	.110242E-02
1994Q2	.371019	.103553E-02
1994Q3	.398962	.100101E-02
1994Q4	.386567	.929630E-03
1995Q1	.397060	.918906E-03
1995Q2	.402030	.998657E-03
1995Q3	.420593	.995986E-03
1995Q4	.423015	.961311E-03
1996Q1	.406514	.863696E-03
1996Q2	.408403	.788556E-03
1996Q3	.430928	.744191E-03
1996Q4	.410451	.203430E-02
1997Q1	.405222	.787507E-02
1997Q2	.403967	.695147E-02
1997Q3	.422786	.650467E-02
1997Q4	.425461	.571723E-02
1998Q1	.421266	.612999E-02
1998Q2	.418429	.645998E-02
1998Q3	.432672	.691822E-02
1998Q4	.438837	.454290E-02
1999Q1	.443742	.533882E-02
1999Q2	.435376	.717800E-02
1999Q3	.443736	.695737E-02
1999Q4	.452296	.557589E-02
2000Q1	.460920	.731361E-02

```
  2000Q2                .448090        .638831E-02
  2000Q3                .468897        .698017E-02
  2000Q4                .478144        .616315E-02
  2001Q1                .477292        .594288E-02
  2001Q2                .461858        .839093E-02
  2001Q3                .479756        .117038E-01

330> !
330> use 1997q1 2016q1
331> mu1_3b1 = mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t_mc95
332> mu1_3b3 =
mu_b30+mu_b3f*fall+mu_b3f*winter+mu_b3f*spring-mu_b3t*t+mu_b3tm*t_mc95-mu_b3mc*mc95
333> mu1_3b5 =
mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_mc95+mu_b5mc*mc95
334> mu1_3f1 =
mu_f10+mu_f1f*fall+mu_f1f*winter+mu_f1s*spring+mu_f1t*t-mu_f1m*mc95-mu_f1tm*t_mc95
335> mu1_3f3 =
mu_f30-mu_f3f*fall-mu_f3f*winter-mu_f3s*spring-mu_f3t*t-mu_f3m*mc95+mu_f3t*t_mc95
336> mu1_3c =
mu_c0+mu_cf*fall+mu_cw*winter+mu_cs*spring+mu_ct*t+mu_c94*d94+mu_cm*mc95
337> punchdif('mu1_3') a1_3b1 a1_3f1 a1_3b3 a1_3b5 a1_3f3 a1_3c ...
337> mu1_3b1 mu1_3f1 mu1_3b3 mu1_3b5 mu1_3f3 mu1_3c ...
337> sig1_3b1 sig1_3f1 sig1_3b3 sig1_3b5 sig1_3f3 sig1_3c


  *** File deleted ( 2): mu1_3.dif
  *** File created ( 2): mu1_3.dif
  *** File closed  ( 2): mu1_3.dif

338> !
```

Private First-Class Cards

```
Soritec Log File
Thursday, June 07, 2001 14:52:24

3> access rcf_r2001


  *** File opened  ( 1): rcf_r2001.sdb

4> !
4> use 1976q4 2001q3
5> vol5_7n = vol5_7na + vol5_7r
6> vol5_7z = vol5_7z1 + vol5_7z3
7> !
7> use 1995q4 1996q3
8> vw5_7na = sum(vol5_7na)
9> vw5_7r = sum(vol5_7r)
10> set w5_7na = vw5_7na / (vw5_7na + vw5_7r)
11> !
11> use 1976q4 1996q3
12> d5_7n = w5_7na*d5_7na
13> use 1997q1 2001q3
14> revise d5_7n = d5_7na
15> use 1996q4
16> revise d5_7n = (28/88)*d5_7n{-1}+(60/88)*d5_7n{+1}
17> use 1976q4 2001q3
18> d5_7z = (vol5_7z1*d5_7z1 + vol5_7z3*d5_7z3) / vol5_7z


  *** WARNING 190: Transformation at line 18.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 50 times.

19> !
19> use 2000q3
20> revise vol05sp = vol05sp - .003754
21> revise vol5_7n = vol5_7n - 98.482309
22> !
22> use 1976q4 2001q3
23> dot '5_7n' '5_7b1' '5_7b3' '5_7b5' '5_7z' '5_7c'
24> pct: = vol: / (vol05sp+vol5_7n+vol5_7b1+vol5_7b3+vol5_7b5+vol5_7z+vol5_7c)
25> d: = d: / pc
26> enddot
27> !
27> use 1993q1 2016q1
28> dummy fall  1993q1 4
29> dummy winter 1993q2 4
30> dummy spring 1993q3 4
31> dummy summer 1993q4 4
32> dummy d93q4 1993q4 1
33> dummy mc95 1996q4 1
34> dummy d2000q2 2000q2 1
35> time t
36> t = t - 1
37> t_mc95 = t - 15
38> use 1993q1 1996q4
```

```
39> revise t_mc95 = 0
40> use 1996q4
41> revise mc95 = (60/88)
42> !
42> use 2004q1
43> t_inc = 1
44> on dynamic
45> use 2004q2 2005q1
46> revise t_inc = t_inc{-1} - .05
47> use 2005q2 2016q1
48> revise t_inc = t_inc{-1} - .075
49> use 2004q1 2016q1
50> t_inc = t_inc*(t_inc>=0)
51> revise t = t{-1} + t_inc
52> revise t_mc95 = t_mc95{-1} + t_inc
53> !
53> use 1993q1 2001q3
54> equation en pct5_7n = an / ...
54>
(1+exp(-(d5_7n-(mu_n0+mu_nf*fall+mu_nw*winter+mu_ns*spring+mu_nt*t+mu_ntm*t_mc95+mu_
nmc*mc95+oc5_7b1+oc5_7b3+oc5_7b5)) / ...
54> sign))+ ...
54> 100000*((1-an)-abs(1-an)) + ...
54> 100000*(sign - abs(sign))
54> parameter an .4 sign .0710744
55> !
55> equation ez pct5_7z = (az*(1-mc95)) / ...
55>
(1+exp(-(d5_7z-(mu_z0-mu_zf*fall-mu_zw*winter-mu_zs*spring+mu_zt*t+oc5_7b3+oc5_7b5))
/ ...
55> sigz)) + ...
55> 100000*((1-az)-abs(1-az)) + ...
55> 100000*(sigz - abs(sigz))
55> parameter az .223450 sigz .004783
56> !
56> equation eb1 pct5_7b1 = (ab1+ab1_m*mc95) / ...
56>
(1+exp(-(d5_7b1-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t+mu_b1tm*t_m
c95+mu_b1m*mc95+oc5_7n+mc95*oc5_7b3)) / ...
56> sigb1)) + ...
56> 100000*((1-ab1_m)-abs(1-ab1_m)) + ...
56> 100000*(sigb1 - abs(sigb1))
56> parameter ab1 0.418275 ab1_m .170913 sigb1 .0691234
57> !
57> equation eb3 pct5_7b3 = (ab30+ab31*d93q4+ab3_m*mc95) / ...
57>
(1+exp(-(d5_7b3-(mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring-mu_b3t*t+mu_b3tm*t_m
c95-mu_b3mc*mc95+oc5_7n+oc5_7z+mc95*oc5_7b1+oc5_7b5)) / ...
57> sigb3)) + ...
57> 100000*((1-ab30-ab31-ab3_m)-abs(1-ab30-ab31-ab3_m)) + ...
57> 100000*(sigb3 - abs(sigb3))
57> parameter ab30 .178628 ab31 0.061657 ab3_m 0.087936 sigb3 .010356
58> !
58> equation eb5 pct5_7b5 = ab5 / ...
58>
(1+exp(-(d5_7b5-(mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_m
c95+mu_b5mc*mc95+oc5_7n+oc5_7z+oc5_7b3)) / ...
58> sigb5)) + ...
```

```
58> 100000*((1-ab5)-abs(1-ab5)) + ...
58> 100000*(sigb5 - abs(sigb5))
58> parameter ab5 .273973 sigb5 .0520754
59> !
59> equation ec pct5_7c = (ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95) / ...
59>
(1+exp(-(d5_7c-(mu_c0-mu_cf*fall-mu_cw*winter-mu_cs*spring-mu_ct*t-mu_ctm*t_mc95+mu_
cm*mc95)) ...
59> / sigc)) + ...
59> 100000*((1-ac)-abs(1-ac)) + ...
59> 100000*(sigc - abs(sigc))
59> parameter ac .164205 cpct0 .289445 cpct1 0.049729 sigc .027666
60> !
60> use 1993q1 2001q3
61> mu5_7n = sign*ln((an/pct5_7n)-1) + d5_7n
62> mu5_7z = sigz*ln(((az*(1-mc95))/pct5_7z)-1) + d5_7z


  *** WARNING 190: Transformation at line 62.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.

63> mu5_7b1 = sigb1*ln((((ab1+ab1_m*mc95))/pct5_7b1)-1) + d5_7b1
64> mu5_7b3 = sigb3*ln(((ab30+ab31*d93q4+ab3_m*mc95)/pct5_7b3)-1) + d5_7b3
65> mu5_7b5 = sigb5*ln((ab5/pct5_7b5)-1) + d5_7b5
66> mu5_7c = sigc*ln(((ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95)/pct5_7c)-1) +
d5_7c
67> dot n z b1 b3 b5 c
68> sig5_7: = sig:
69> enddot
70> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
71> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
72> zpct = 1 / (1 + exp(mu:/sig:))
73> gzpct = (napct-zpct)/napct
74> lzpct = 1 - gzpct
75> totbar = d: + sig:*log(1 - napct)/napct
76> lzbar = sig:*log(1 - zpct)/zpct
77> ubar = (totbar - lzbar*lzpct)
78> oc: = (d: - ubar)*pct:
79> enddot
80> !
80> mu5_7b5 = mu5_7b5 - oc5_7n - oc5_7z - oc5_7b3
81> mu5_7b3 = mu5_7b3 - oc5_7n - oc5_7z - oc5_7b5 - mc95*oc5_7b1
82> mu5_7b1 = mu5_7b1 - oc5_7n - mc95*oc5_7b3
83> mu5_7z = mu5_7z - oc5_7b3 - oc5_7b5
84> mu5_7n = mu5_7n - oc5_7b5 - oc5_7b3 - oc5_7b1
85> dot n b1 b3 b5 c
86> regress mu5_7: fall winter spring t mc95 t_mc95
87> parameter mu_:0 = ^coef(1)
88> parameter mu_:f = ^coef(2)
89> parameter mu_:w = ^coef(3)
90> parameter mu_:s = ^coef(4)
91> parameter mu_:t = ^coef(5)
92> parameter mu_:m = ^coef(6)
93> parameter mu_:tm = ^coef(7)
94> enddot
```

REGRESS : dependent variable is MU5_7N

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.244449E-01	.501963E-02	4.86986	.000
FALL	.267052E-02	.411372E-02	.649173	.522
WINTER	-.225310E-02	.410801E-02	-.548465	.588
SPRING	.815670E-03	.412421E-02	.197776	.845
T	.392328E-03	.502218E-03	.781190	.441
MC95	.303661E-01	.613181E-02	4.95223	.000
T_MC95	.118154E-02	.594533E-03	1.98733	.057

Equation Summary

No. of Observations =	35	R2= .9167	(adj)= .8988
Sum of Sq. Resid. =	.198782E-02	Std. Error of Reg.=	.842577E-02
Log(likelihood) =	121.418	Durbin-Watson =	1.46669
Schwarz Criterion =	108.975	F (6, 28) =	51.3442
Akaike Criterion =	114.418	Significance =	.000000

REGRESS : dependent variable is MU5_7B1

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.274748	.538776E-02	50.9948	.000
FALL	.237033E-02	.441541E-02	.536831	.596
WINTER	.569001E-02	.440929E-02	1.29046	.207
SPRING	.248551E-02	.442667E-02	.561486	.579
T	-.301941E-02	.539050E-03	-5.60135	.000
MC95	-.643792E-01	.658150E-02	-9.78185	.000
T_MC95	.167550E-02	.638135E-03	2.62562	.014

Equation Summary

No. of Observations =	35	R2= .9755	(adj)= .9702
Sum of Sq. Resid. =	.229008E-02	Std. Error of Reg.=	.904370E-02
Log(likelihood) =	118.941	Durbin-Watson =	1.87648
Schwarz Criterion =	106.497	F (6, 28) =	185.693
Akaike Criterion =	111.941	Significance =	.000000

REGRESS : dependent variable is MU5_7B3

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.516797E-01	.743421E-03	69.5161	.000
FALL	.204960E-02	.609253E-03	3.36413	.002

WINTER	-.698354E-03	.608408E-03	-1.14784	.261
SPRING	.885489E-03	.610807E-03	1.44970	.158
T	-.820007E-03	.743799E-04	-11.0246	.000
MC95	-.447346E-02	.908137E-03	-4.92598	.000
T_MC95	.309233E-03	.880520E-04	3.51194	.002

Equation Summary

No. of Observations =	35	R2= .9834	(adj)= .9798
Sum of Sq. Resid. =	.436017E-04	Std. Error of Reg.=	.124788E-02
Log(likelihood) =	188.263	Durbin-Watson =	1.67552
Schwarz Criterion =	175.819	F (6, 28) =	275.636
Akaike Criterion =	181.263	Significance =	.000000

REGRESS : dependent variable is MU5_7B5

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.108324	.527816E-02	20.5231	.000
FALL	.583812E-02	.432559E-02	1.34967	.188
WINTER	-.632700E-02	.431959E-02	-1.46472	.154
SPRING	.696319E-02	.433662E-02	1.60567	.120
T	-.486616E-02	.528085E-03	-9.21474	.000
MC95	.430167E-01	.644762E-02	6.67173	.000
T_MC95	.303936E-02	.625154E-03	4.86178	.000

Equation Summary

No. of Observations =	35	R2= .8356	(adj)= .8004
Sum of Sq. Resid. =	.219785E-02	Std. Error of Reg.=	.885973E-02
Log(likelihood) =	119.661	Durbin-Watson =	1.09269
Schwarz Criterion =	107.217	F (6, 28) =	23.7252
Akaike Criterion =	112.661	Significance =	.000000

REGRESS : dependent variable is MU5_7C

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.449267E-01	.523426E-02	8.58320	.000
FALL	.425786E-02	.428962E-02	.992597	.329
WINTER	-.238066E-01	.428366E-02	-5.55754	.000
SPRING	.470461E-02	.430055E-02	1.09396	.283
T	-.311260E-03	.523692E-03	-.594356	.557
MC95	.231045E-02	.639399E-02	.361347	.721
T_MC95	.200469E-02	.619954E-03	3.23362	.003

Equation Summary

No. of Observations =	35	R2= .8066	(adj)= .7651
Sum of Sq. Resid. =	.216144E-02	Std. Error of Reg.=	.878604E-02

```
     Log(likelihood)    =    119.953       Durbin-Watson      =  2.15110
     Schwarz Criterion  =    107.509       F (  6,   28)      =  19.4601
     Akaike Criterion   =    112.953       Significance       =  .000000


95> !
95> use 1993q1 1996q3
96> regress mu5_7z fall winter spring t


  REGRESS : dependent variable is MU5_7Z

  Using   1993Q1-1996Q3


      Variable          Coefficient      Std Err        T-stat      Signf

  ^CONST                  .323933E-01   .290286E-03    111.591       .000
  FALL                    .943463E-04   .310375E-03    .303975       .767
  WINTER                 -.751305E-03   .309402E-03   -2.42825       .036
  SPRING                 -.183816E-03   .310375E-03   -.592239       .567
  T                      -.355639E-04   .245629E-04   -1.44787       .178


                              Equation Summary
     No. of Observations =       15       R2=    .5623   (adj)=    .3872
     Sum of Sq. Resid.   =   .164107E-05   Std. Error of Reg.=  .405102E-03
     Log(likelihood)     =    98.9275      Durbin-Watson      =  1.35547
     Schwarz Criterion   =    92.1574      F (  4,   10)      =  3.21108
     Akaike Criterion    =    93.9275      Significance       =  .061260

97> parameter mu_z0 = ^coef(1)
98> parameter mu_zf = ^coef(2)
99> parameter mu_zw = ^coef(3)
100> parameter mu_zs = ^coef(4)
101> parameter mu_zt = ^coef(5)
102> !
102> use 1993q1 2001q3
103> dot mu_zf mu_zw mu_zs mu_b1t mu_b3t mu_b3m mu_b5t mu_b5tm mu_cf mu_cw mu_cs
mu_ct mu_ctm
104> set : = -1*:
105> enddot
106> parameter mu_nmc = mu_nm
107> parameter mu_b3mc = mu_b3m
108> parameter mu_b5mt = mu_b5tm
109> parameter mu_b5mc = mu_b5m
110> !
110> dot mu_z0 mu_zf mu_zw mu_zs mu_zt
111> constant : = :
112> enddot


  *** WARNING 198: Command CONSTANT at line 111.
  *** Redefined MU_Z0 as different type of item.


  *** WARNING 198: Command CONSTANT at line 111.
  *** Redefined MU_ZF as different type of item.
```

```
   *** WARNING 198: Command CONSTANT at line 111.
   *** Redefined MU_ZW as different type of item.


   *** WARNING 198: Command CONSTANT at line 111.
   *** Redefined MU_ZS as different type of item.


   *** WARNING 198: Command CONSTANT at line 111.
   *** Redefined MU_ZT as different type of item.


113> dot mu_b30 mu_b3f mu_b3w mu_b3s mu_b3t mu_b3mc mu_b3tm
114> constant : = :
115> enddot


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B30 as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3F as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3W as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3S as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3T as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3MC as different type of item.


   *** WARNING 198: Command CONSTANT at line 114.
   *** Redefined MU_B3TM as different type of item.


116> dot mu_c0 mu_cf mu_cw mu_cs mu_ct mu_cm mu_ctm
117> constant : = :
118> enddot


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_C0 as different type of item.


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CF as different type of item.
```

```
   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CW as different type of item.


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CS as different type of item.


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CT as different type of item.


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CM as different type of item.


   *** WARNING 198: Command CONSTANT at line 117.
   *** Redefined MU_CTM as different type of item.


 119> dot mu_nf mu_b3tm mu_cf mu_cm
 120> constant : = 0
 121> enddot


   *** WARNING 198: Command CONSTANT at line 120.
   *** Redefined MU_NF as different type of item.


 122> !
 122> set iteration = 0
 123> do
 124> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
 125> boc: = oc:
 126> enddot
 127> !
 127> regress (maxit=500) en
 128> mu5_7n = sign*ln((an/pct5_7n)-1) + d5_7n
 129> napct = 1 / (1 + exp(-(d5_7n-mu5_7n)/sign))
 130> zpct = 1 / (1 + exp(mu5_7n/sign))
 131> gzpct = (napct-zpct)/napct
 132> lzpct = 1 - gzpct
 133> totbar = d5_7n + sign*log(1 - napct)/napct
 134> lzbar = sign*log(1 - zpct)/zpct
 135> ubar = (totbar - lzbar*lzpct)
 136> revise oc5_7n = (d5_7n - ubar)*pct5_7n
 137> !
 137> regress (maxit=500) ez
 138> mu5_7z = sigz*ln(((az*(1-mc95))/pct5_7z)-1) + d5_7z
 139> napct = 1 / (1 + exp(-(d5_7z-mu5_7z)/sigz))
 140> zpct = 1 / (1 + exp(mu5_7z/sigz))
 141> gzpct = (napct-zpct)/napct
 142> lzpct = 1 - gzpct
 143> totbar = d5_7z + sigz*log(1 - napct)/napct
 144> lzbar = sigz*log(1 - zpct)/zpct
 145> ubar = (totbar - lzbar*lzpct)
```

```
146> revise oc5_7z = (d5_7z - ubar)*pct5_7z
147> !
147> regress (maxit=500) eb1
148> mu5_7b1 = sigb1*ln((((ab1+ab1_m*mc95))/pct5_7b1)-1) + d5_7b1
149> napct = 1 / (1 + exp(-(d5_7b1-mu5_7b1)/sigb1))
150> zpct = 1 / (1 + exp(mu5_7b1/sigb1))
151> gzpct = (napct-zpct)/napct
152> lzpct = 1 - gzpct
153> totbar = d5_7b1 + sigb1*log(1 - napct)/napct
154> lzbar = sigb1*log(1 - zpct)/zpct
155> ubar = (totbar - lzbar*lzpct)
156> revise oc5_7b1 = (d5_7b1 - ubar)*pct5_7b1
157> !
157> regress (maxit=500) eb3
158> mu5_7b3 = sigb3*ln(((ab30+ab31*d93q4+ab3_m*mc95)/pct5_7b3)-1) + d5_7b3
159> napct = 1 / (1 + exp(-(d5_7b3-mu5_7b3)/sigb3))
160> zpct = 1 / (1 + exp(mu5_7b3/sigb3))
161> gzpct = (napct-zpct)/napct
162> lzpct = 1 - gzpct
163> totbar = d5_7b3 + sigb3*log(1 - napct)/napct
164> lzbar = sigb3*log(1 - zpct)/zpct
165> ubar = (totbar - lzbar*lzpct)
166> revise oc5_7b3 = (d5_7b3 - ubar)*pct5_7b3
167> !
167> regress (maxit=500) eb5
168> mu5_7b5 = sigb5*ln((ab5/pct5_7b5)-1) + d5_7b5
169> napct = 1 / (1 + exp(-(d5_7b5-mu5_7b5)/sigb5))
170> zpct = 1 / (1 + exp(mu5_7b5/sigb5))
171> gzpct = (napct-zpct)/napct
172> lzpct = 1 - gzpct
173> totbar = d5_7b5 + sigb5*log(1 - napct)/napct
174> lzbar = sigb5*log(1 - zpct)/zpct
175> ubar = (totbar - lzbar*lzpct)
176> revise oc5_7b5 = (d5_7b5 - ubar)*pct5_7b5
177> !
177> regress (maxit=500) ec
178> mu5_7c = sigc*ln(((ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95)/pct5_7c)-1) +
d5_7c
179> napct = 1 / (1 + exp(-(d5_7c-mu5_7c)/sigc))
180> zpct = 1 / (1 + exp(mu5_7c/sigc))
181> gzpct = (napct-zpct)/napct
182> lzpct = 1 - gzpct
183> totbar = d5_7c + sigc*log(1 - napct)/napct
184> lzbar = sigc*log(1 - zpct)/zpct
185> ubar = (totbar - lzbar*lzpct)
186> revise oc5_7c = (d5_7c - ubar)*pct5_7c
187> !
187> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
188> dsq: = (oc: - boc:)**2
189> enddot
190> set iteration = iteration + 1
191> dsq = dsq5_7n + dsq5_7z + dsq5_7b1 + dsq5_7b3 + dsq5_7b5 + dsq5_7c
192> teststat = sum(dsq)
193> print teststat
194> if (iteration .gt. 10) set teststat = -3
196> until (teststat<0.00000005)
```

Nonlinear Least Squares

Convergence achieved after 33 iterations.

Equation EN

Dependent variable is PCT5_7N

Variable	Coefficient	Std Err	T-stat	Signf
AN	.180275	.510850E-02	35.2892	.000
MU_NO	-.672006E-02	.150303E-01	-.447100	.658
MU_NW	-.185618E-02	.422508E-03	-4.39324	.000
MU_NS	.696449E-04	.358683E-03	.194169	.847
MU_NT	.566649E-03	.101592E-02	.557772	.582
MU_NTM	-.620583E-03	.100992E-02	-.614486	.544
MU_NMC	.754049E-02	.286831E-02	2.62890	.014
SIGN	.317001E-02	.102882E-02	3.08122	.005

R-Squared= .95045 No. obs= 35
R-Bar-Squared (adj) = .93761
Durbin-Watson (0 gaps) = 1.831174
Sum of squared residuals = .196745E-02
Std. error of regression = .853631E-02
Sum of residuals = .307357E-03
Mean of dependent variable = .141381
Log of likelihood function = 121.599

*** WARNING 191: Transformation at line 128.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 5 times.

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EZ

Dependent variable is PCT5_7Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.237685	.765225E-02	31.0608	.000
SIGZ	.465890E-02	.772225E-04	60.3308	.000

R-Squared= .99527 No. obs= 35
R-Bar-Squared (adj) = .99513

```
Durbin-Watson (   0 gaps) =  1.716763
Sum of squared residuals =     .197561E-04
Std. error of regression =     .773738E-03
Sum of residuals =             .112739E-02
Mean of dependent variable =   .797323E-02
Log of likelihood function =  202.117


*** WARNING 190: Transformation at line 138.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.


        Nonlinear Least Squares


Convergence achieved after 33 iterations.


        Equation EB1

        Dependent variable is PCT5_7B1
```

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.162976E-01	.159786E-02	10.1996	.000
AB1_M	.801360E-01	.389235E-02	20.5881	.000
MU_B10	.209638E-01	.226391E-02	9.25999	.000
MU_B1F	.142254E-02	.114373E-02	1.24377	.225
MU_B1W	-.525283E-03	.590334E-03	-.889807	.382
MU_B1S	-.353072E-03	.696721E-03	-.506762	.617
MU_B1T	.805321E-03	.305771E-03	2.63374	.014
MU_B1TM	.297489E-03	.223695E-03	1.32988	.196
MU_B1M	.198050E-01	.377216E-02	5.25032	.000
SIGB1	.317164E-02	.258805E-02	1.22549	.232

```
R-Squared=  .99420     No. obs=    35
R-Bar-Squared (adj)        =   .99212
Durbin-Watson (   0 gaps) =  1.936325
Sum of squared residuals =     .234519E-03
Std. error of regression =     .306280E-02
Sum of residuals =             .717629E-03
Mean of dependent variable =   .520650E-01
Log of likelihood function =  158.820


*** WARNING 191: Transformation at line 148.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 4 times.


        Nonlinear Least Squares
```

Convergence achieved after 4 iterations.

Equation EB3

Dependent variable is PCT5_7B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.103710	.180382E-01	5.74945	.000
AB31	.685300E-01	.163591E-01	4.18910	.001
AB3_M	.103145	.177763E-01	5.80241	.000
SIGB3	.150169E-01	.158005E-02	9.50408	.000

R-Squared= .99132 No. obs= 35
R-Bar-Squared (adj) = .99048
Durbin-Watson (0 gaps) = 1.890817
Sum of squared residuals = .113981E-02
Std. error of regression = .606366E-02
Sum of residuals = -.686072E-03
Mean of dependent variable = .111487
Log of likelihood function = 131.151

Nonlinear Least Squares

Convergence achieved after 57 iterations.

Equation EB5

Dependent variable is PCT5_7B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.180414	.583447E-01	3.09222	.005
MU_B50	.991213E-01	.163941	.604615	.551
MU_B5F	.109504E-01	.285576E-01	.383451	.705
MU_B5W	-.162356E-01	.474525E-01	-.342144	.735
MU_B5S	.151390E-01	.413451E-01	.366162	.717
MU_B5T	.973125E-02	.263514E-01	.369289	.715
MU_B5MT	-.596392E-02	.175749E-01	-.339342	.737
MU_B5MC	.775339E-01	.173982	.445644	.660
SIGB5	.772462E-01	.209664	.368428	.716

R-Squared= .84025 No. obs= 35
R-Bar-Squared (adj) = .79110
Durbin-Watson (0 gaps) = 1.208461
Sum of squared residuals = .315357E-02
Std. error of regression = .110132E-01
Sum of residuals = -.581808E-03
Mean of dependent variable = .108450
Log of likelihood function = 113.342

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EC

Dependent variable is PCT5_7C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.160830	.397229E-02	40.4879	.000
CPCT0	.284289	.233334E-01	12.1838	.000
CPCT1	.659874E-01	.482303E-01	1.36817	.181
SIGC	.302666E-01	.434184E-02	6.97091	.000

R-Squared= .95120 No. obs= 35
R-Bar-Squared (adj) = .94648
Durbin-Watson (0 gaps) = 2.069752
Sum of squared residuals = .181101E-02
Std. error of regression = .764329E-02
Sum of residuals = -.202577E-02
Mean of dependent variable = .496611E-01
Log of likelihood function = 123.048

Constant TESTSTAT = .135281E-03

Nonlinear Least Squares

Convergence achieved after 6 iterations.

Equation EN

Dependent variable is PCT5_7N

Variable	Coefficient	Std Err	T-stat	Signf
AN	.180291	.524346E-02	34.3839	.000
MU_NO	-.113383E-01	.189770E-01	-.597477	.555
MU_NW	-.232390E-02	.532298E-03	-4.36579	.000
MU_NS	.145901E-03	.449360E-03	.324686	.748
MU_NT	.677672E-03	.127879E-02	.529932	.600
MU_NTM	-.722800E-03	.127111E-02	-.568636	.574
MU_NMC	.968754E-02	.361645E-02	2.67874	.012
SIGN	.394019E-02	.131619E-02	2.99363	.006

R-Squared= .94970 No. obs= 35

```
R-Bar-Squared (adj)          =    .93666
Durbin-Watson (   0 gaps) =  1.756684
Sum of squared residuals =     .199741E-02
Std. error of regression =     .860106E-02
Sum of residuals =             .341108E-03
Mean of dependent variable =  .141381
Log of likelihood function =  121.334
```

```
*** WARNING 191: Transformation at line 128.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 5 times.
```

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EZ

Dependent variable is PCT5_7Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.230401	.753435E-02	30.5800	.000
SIGZ	.498028E-02	.855041E-04	58.2461	.000

```
R-Squared=  .99497     No. obs=     35
R-Bar-Squared (adj)          =    .99482
Durbin-Watson (   0 gaps) =  1.408549
Sum of squared residuals =     .210191E-04
Std. error of regression =     .798086E-03
Sum of residuals =             .152563E-02
Mean of dependent variable =  .797323E-02
Log of likelihood function =  201.032
```

```
*** WARNING 190: Transformation at line 138.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.
```

Nonlinear Least Squares

Convergence achieved after 4 iterations.

Equation EB1

Dependent variable is PCT5_7B1

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.164900E-01	.171885E-02	9.59364	.000
AB1_M	.803420E-01	.422391E-02	19.0208	.000
MU_B10	.207053E-01	.249716E-02	8.29153	.000
MU_B1F	.162496E-02	.129851E-02	1.25140	.222
MU_B1W	-.719713E-03	.668828E-03	-1.07608	.292
MU_B1S	-.394522E-03	.800244E-03	-.493002	.626
MU_B1T	.839157E-03	.358797E-03	2.33881	.028
MU_B1TM	.269083E-03	.247411E-03	1.08760	.287
MU_B1M	.192746E-01	.439478E-02	4.38580	.000
SIGB1	.362718E-02	.299302E-02	1.21188	.237

R-Squared= .99412 No. obs= 35
R-Bar-Squared (adj) = .99200
Durbin-Watson (0 gaps) = 1.982974
Sum of squared residuals = .238014E-03
Std. error of regression = .308554E-02
Sum of residuals = .700760E-03
Mean of dependent variable = .520650E-01
Log of likelihood function = 158.561

*** WARNING 191: Transformation at line 148.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 3 times.

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB3

Dependent variable is PCT5_7B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.100395	.179185E-01	5.60286	.000
AB31	.711607E-01	.168435E-01	4.22481	.001
AB3_M	.114257	.173461E-01	6.58691	.000
SIGB3	.158788E-01	.167997E-02	9.45181	.000

R-Squared= .99035 No. obs= 35
R-Bar-Squared (adj) = .98942
Durbin-Watson (0 gaps) = 1.921723
Sum of squared residuals = .126687E-02
Std. error of regression = .639270E-02
Sum of residuals = -.110733E-02
Mean of dependent variable = .111487
Log of likelihood function = 129.302

Nonlinear Least Squares

Convergence achieved after 28 iterations.

Equation EB5

Dependent variable is PCT5_7B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.179385	.565804E-01	3.17044	.004
MU_B50	.848479E-01	.989753E-01	.857264	.399
MU_B5F	.864638E-02	.176980E-01	.488552	.629
MU_B5W	-.123945E-01	.286842E-01	-.432104	.669
MU_B5S	.117346E-01	.250849E-01	.467795	.644
MU_B5T	.751827E-02	.156582E-01	.480149	.635
MU_B5MT	-.448753E-02	.104366E-01	-.429979	.671
MU_B5MC	.630711E-01	.103882	.607142	.549
SIGB5	.589702E-01	.124361	.474184	.639

R-Squared= .84081 No. obs= 35
R-Bar-Squared (adj) = .79183
Durbin-Watson (0 gaps) = 1.207438
Sum of squared residuals = .314252E-02
Std. error of regression = .109939E-01
Sum of residuals = -.572396E-03
Mean of dependent variable = .108450
Log of likelihood function = 113.404

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EC

Dependent variable is PCT5_7C

Variable	Coefficient	Std Err	T-stat	Signf
AC	.160830	.397228E-02	40.4881	.000
CPCT0	.284289	.233330E-01	12.1840	.000
CPCT1	.659884E-01	.482308E-01	1.36818	.181
SIGC	.302668E-01	.434074E-02	6.97274	.000

R-Squared= .95120 No. obs= 35
R-Bar-Squared (adj) = .94648
Durbin-Watson (0 gaps) = 2.069752

```
Sum of squared residuals =     .181101E-02
Std. error of regression =     .764329E-02
Sum of residuals =            -.202618E-02
Mean of dependent variable =   .496611E-01
Log of likelihood function =   123.048

Constant TESTSTAT =    .258653E-05

          Nonlinear Least Squares

Convergence achieved after 5 iterations.

          Equation EN

          Dependent variable is PCT5_7N
```

Variable	Coefficient	Std Err	T-stat	Signf
AN	.180238	.520000E-02	34.6611	.000
MU_N0	-.110084E-01	.189140E-01	-.582027	.565
MU_NW	-.234525E-02	.520659E-03	-4.50438	.000
MU_NS	.125383E-03	.441608E-03	.283924	.779
MU_NT	.668440E-03	.127566E-02	.523994	.605
MU_NTM	-.722924E-03	.126817E-02	-.570052	.573
MU_NMC	.971234E-02	.355051E-02	2.73548	.011
SIGN	.389227E-02	.127005E-02	3.06466	.005

```
R-Squared=  .95030     No. obs=     35
R-Bar-Squared (adj)        =    .93741
Durbin-Watson (   0 gaps) =  1.756794
Sum of squared residuals =     .197378E-02
Std. error of regression =     .855003E-02
Sum of residuals =             .349599E-03
Mean of dependent variable =   .141381
Log of likelihood function =   121.542

*** WARNING 191: Transformation at line 128.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 5 times.

          Nonlinear Least Squares

Convergence achieved after 2 iterations.

          Equation EZ

          Dependent variable is PCT5_7Z
```

Variable	Coefficient	Std Err	T-stat	Signf
AZ	.227949	.751646E-02	30.3266	.000
SIGZ	.495542E-02	.863743E-04	57.3715	.000

R-Squared= .99481 No. obs= 35
R-Bar-Squared (adj) = .99465
Durbin-Watson (0 gaps) = 1.399752
Sum of squared residuals = .216854E-04
Std. error of regression = .810637E-03
Sum of residuals = .153409E-02
Mean of dependent variable = .797323E-02
Log of likelihood function = 200.486

*** WARNING 190: Transformation at line 138.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB1

Dependent variable is PCT5_7B1

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.164883E-01	.172636E-02	9.55091	.000
AB1_M	.802772E-01	.417625E-02	19.2223	.000
MU_B10	.207052E-01	.251129E-02	8.24481	.000
MU_B1F	.162200E-02	.131933E-02	1.22941	.230
MU_B1W	-.715915E-03	.675232E-03	-1.06025	.299
MU_B1S	-.395035E-03	.809860E-03	-.487782	.630
MU_B1T	.836521E-03	.363821E-03	2.29927	.030
MU_B1TM	.266631E-03	.248553E-03	1.07273	.294
MU_B1M	.191758E-01	.445545E-02	4.30389	.000
SIGB1	.361915E-02	.303845E-02	1.19112	.245

R-Squared= .99411 No. obs= 35
R-Bar-Squared (adj) = .99199
Durbin-Watson (0 gaps) = 1.981946
Sum of squared residuals = .238251E-03
Std. error of regression = .308708E-02
Sum of residuals = .703606E-03
Mean of dependent variable = .520650E-01
Log of likelihood function = 158.544

```
*** WARNING 191: Transformation at line 148.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 3 times.
```

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB3

Dependent variable is PCT5_7B3

Variable	Coefficient	Std Err	T-stat	Signf
AB30	.101484	.183225E-01	5.53878	.000
AB31	.709634E-01	.170599E-01	4.15965	.001
AB3_M	.110849	.179386E-01	6.17937	.000
SIGB3	.155764E-01	.167845E-02	9.28022	.000

R-Squared= .99028 No. obs= 35
R-Bar-Squared (adj) = .98934
Durbin-Watson (0 gaps) = 1.915898
Sum of squared residuals = .127588E-02
Std. error of regression = .641540E-02
Sum of residuals = -.104879E-02
Mean of dependent variable = .111487
Log of likelihood function = 129.178

Nonlinear Least Squares

Convergence achieved after 7 iterations.

Equation EB5

Dependent variable is PCT5_7B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.179364	.567530E-01	3.16044	.004
MU_B50	.853842E-01	.100995	.845433	.406
MU_B5F	.873880E-02	.180261E-01	.484786	.632
MU_B5W	-.125586E-01	.292213E-01	-.429774	.671
MU_B5S	.118727E-01	.255699E-01	.464324	.646
MU_B5T	.760803E-02	.159755E-01	.476230	.638
MU_B5MT	-.454619E-02	.106499E-01	-.426878	.673
MU_B5MC	.636830E-01	.105956	.601031	.553
SIGB5	.596870E-01	.126933	.470224	.642

```
R-Squared=  .84078     No. obs=    35
R-Bar-Squared (adj)        =   .79179
Durbin-Watson (   0 gaps) =  1.207755
Sum of squared residuals =    .314312E-02
Std. error of regression =    .109950E-01
Sum of residuals =           -.572271E-03
Mean of dependent variable =  .108450
Log of likelihood function =  113.400


   Nonlinear Least Squares

Convergence achieved after 1 iterations.


   Equation EC

   Dependent variable is PCT5_7C

    Variable          Coefficient      Std Err        T-stat      Signf

AC                      .160830      .397228E-02    40.4881       .000
CPCT0                   .284289      .233330E-01    12.1840       .000
CPCT1                   .659883E-01  .482307E-01    1.36818       .181
SIGC                    .302668E-01  .434079E-02    6.97265       .000

R-Squared=  .95120     No. obs=    35
R-Bar-Squared (adj)        =   .94648
Durbin-Watson (   0 gaps) =  2.069752
Sum of squared residuals =    .181101E-02
Std. error of regression =    .764329E-02
Sum of residuals =           -.202616E-02
Mean of dependent variable =  .496611E-01
Log of likelihood function =  123.048

Constant TESTSTAT =   .230498E-07

197> print teststat iteration


Constant TESTSTAT =   .230498E-07

Constant ITERATION =   3.00000

198> !
198> dot mu_z0 mu_zf mu_zw mu_zs mu_zt
199> parameter : = :
200> enddot


*** WARNING 198: Command PARAMETER at line 199.
```

```
   *** Redefined MU_Z0 as different type of item.


   *** WARNING 198: Command PARAMETER at line 199.
   *** Redefined MU_ZF as different type of item.


   *** WARNING 198: Command PARAMETER at line 199.
   *** Redefined MU_ZW as different type of item.


   *** WARNING 198: Command PARAMETER at line 199.
   *** Redefined MU_ZS as different type of item.


   *** WARNING 198: Command PARAMETER at line 199.
   *** Redefined MU_ZT as different type of item.


201> dot mu_b30 mu_b3f mu_b3w mu_b3s mu_b3t mu_b3mc mu_b3tm
202> parameter : = :
203> enddot


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B30 as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3F as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3W as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3S as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3T as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3MC as different type of item.


   *** WARNING 198: Command PARAMETER at line 202.
   *** Redefined MU_B3TM as different type of item.


204> dot mu_c0 mu_cf mu_cw mu_cs mu_ct mu_cm mu_ctm
205> parameter : = :
206> enddot


   *** WARNING 198: Command PARAMETER at line 205.
```

```
   *** Redefined MU_C0 as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CF as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CW as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CS as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CT as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CM as different type of item.


   *** WARNING 198: Command PARAMETER at line 205.
   *** Redefined MU_CTM as different type of item.


207> dot mu_nf mu_b3tm mu_cf mu_cm
208> constant : = 0
209> enddot


   *** WARNING 198: Command CONSTANT at line 208.
   *** Redefined MU_B3TM as different type of item.


   *** WARNING 198: Command CONSTANT at line 208.
   *** Redefined MU_CF as different type of item.


   *** WARNING 198: Command CONSTANT at line 208.
   *** Redefined MU_CM as different type of item.


210> dot az sigz ab30 ab31 ab3_m sigb3 ac cpct0 cpct1 sigc
211> constant : = :
212> enddot


   *** WARNING 198: Command CONSTANT at line 211.
   *** Redefined AZ as different type of item.


   *** WARNING 198: Command CONSTANT at line 211.
   *** Redefined SIGZ as different type of item.


   *** WARNING 198: Command CONSTANT at line 211.
```

```
*** Redefined AB30 as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined AB31 as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined AB3_M as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined SIGB3 as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined AC as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined CPCT0 as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined CPCT1 as different type of item.


*** WARNING 198: Command CONSTANT at line 211.
*** Redefined SIGC as different type of item.


213> !
213> set iteration = 0
214> do
215> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
216> boc: = oc:
217> enddot
218> !
218> regress (maxit=500) en
219> mu5_7n = sign*ln((an/pct5_7n)-1) + d5_7n
220> napct = 1 / (1 + exp(-(d5_7n-mu5_7n)/sign))
221> zpct = 1 / (1 + exp(mu5_7n/sign))
222> gzpct = (napct-zpct)/napct
223> lzpct = 1 - gzpct
224> totbar = d5_7n + sign*log(1 - napct)/napct
225> lzbar = sign*log(1 - zpct)/zpct
226> ubar = (totbar - lzbar*lzpct)
227> revise oc5_7n = (d5_7n - ubar)*pct5_7n
228> !
228> regress (maxit=500) ez
229> mu5_7z = sigz*ln(((az*(1-mc95))/pct5_7z)-1) + d5_7z
230> napct = 1 / (1 + exp(-(d5_7z-mu5_7z)/sigz))
231> zpct = 1 / (1 + exp(mu5_7z/sigz))
232> gzpct = (napct-zpct)/napct
233> lzpct = 1 - gzpct
234> totbar = d5_7z + sigz*log(1 - napct)/napct
235> lzbar = sigz*log(1 - zpct)/zpct
236> ubar = (totbar - lzbar*lzpct)
```

```
237> revise oc5_7z = (d5_7z - ubar)*pct5_7z
238> !
238> regress (maxit=500) eb1
239> mu5_7b1 = sigb1*ln(((ab1+ab1_m*mc95))/pct5_7b1)-1) + d5_7b1
240> napct = 1 / (1 + exp(-(d5_7b1-mu5_7b1)/sigb1))
241> zpct = 1 / (1 + exp(mu5_7b1/sigb1))
242> gzpct = (napct-zpct)/napct
243> lzpct = 1 - gzpct
244> totbar = d5_7b1 + sigb1*log(1 - napct)/napct
245> lzbar = sigb1*log(1 - zpct)/zpct
246> ubar = (totbar - lzbar*lzpct)
247> revise oc5_7b1 = (d5_7b1 - ubar)*pct5_7b1
248> !
248> regress (maxit=500) eb3
249> mu5_7b3 = sigb3*ln(((ab30+ab31*d93q4+ab3_m*mc95)/pct5_7b3)-1) + d5_7b3
250> napct = 1 / (1 + exp(-(d5_7b3-mu5_7b3)/sigb3))
251> zpct = 1 / (1 + exp(mu5_7b3/sigb3))
252> gzpct = (napct-zpct)/napct
253> lzpct = 1 - gzpct
254> totbar = d5_7b3 + sigb3*log(1 - napct)/napct
255> lzbar = sigb3*log(1 - zpct)/zpct
256> ubar = (totbar - lzbar*lzpct)
257> revise oc5_7b3 = (d5_7b3 - ubar)*pct5_7b3
258> !
258> regress (maxit=500) eb5
259> mu5_7b5 = sigb5*ln((ab5/pct5_7b5)-1) + d5_7b5
260> napct = 1 / (1 + exp(-(d5_7b5-mu5_7b5)/sigb5))
261> zpct = 1 / (1 + exp(mu5_7b5/sigb5))
262> gzpct = (napct-zpct)/napct
263> lzpct = 1 - gzpct
264> totbar = d5_7b5 + sigb5*log(1 - napct)/napct
265> lzbar = sigb5*log(1 - zpct)/zpct
266> ubar = (totbar - lzbar*lzpct)
267> revise oc5_7b5 = (d5_7b5 - ubar)*pct5_7b5
268> !
268> regress (maxit=500) ec
269> mu5_7c = sigc*ln(((ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95)/pct5_7c)-1) +
d5_7c
270> napct = 1 / (1 + exp(-(d5_7c-mu5_7c)/sigc))
271> zpct = 1 / (1 + exp(mu5_7c/sigc))
272> gzpct = (napct-zpct)/napct
273> lzpct = 1 - gzpct
274> totbar = d5_7c + sigc*log(1 - napct)/napct
275> lzbar = sigc*log(1 - zpct)/zpct
276> ubar = (totbar - lzbar*lzpct)
277> revise oc5_7c = (d5_7c - ubar)*pct5_7c
278> !
278> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
279> dsq: = (oc: - boc:)**2
280> enddot
281> set iteration = iteration + 1
282> dsq = dsq5_7n + dsq5_7z + dsq5_7b1 + dsq5_7b3 + dsq5_7b5 + dsq5_7c
283> teststat = sum(dsq)
284> print teststat
285> if (iteration .gt. 10) set teststat = -3
287> until (teststat<0.00000005)
```

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EN

Dependent variable is PCT5_7N

Variable	Coefficient	Std Err	T-stat	Signf
AN	.180243	.520145E-02	34.6524	.000
MU_NO	-.109866E-01	.188859E-01	-.581736	.566
MU_NW	-.234457E-02	.520489E-03	-4.50454	.000
MU_NS	.125241E-03	.441486E-03	.283680	.779
MU_NT	.667671E-03	.127371E-02	.524194	.604
MU_NTM	-.722214E-03	.126622E-02	-.570369	.573
MU_NMC	.971863E-02	.354831E-02	2.73895	.011
SIGN	.389135E-02	.126980E-02	3.06454	.005

R-Squared= .95030 No. obs= 35
R-Bar-Squared (adj) = .93741
Durbin-Watson (0 gaps) = 1.756266
Sum of squared residuals = .197369E-02
Std. error of regression = .854983E-02
Sum of residuals = .349869E-03
Mean of dependent variable = .141381
Log of likelihood function = 121.543

*** WARNING 191: Transformation at line 219.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 5 times.

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EZ

Dependent variable is PCT5_7Z

Variable	Coefficient	Std Err	T-stat	Signf
MU_ZO	.324096E-01	.183049E-03	177.054	.000
MU_ZF	-.501386E-04	.198618E-03	-.252437	.802
MU_ZW	.695536E-03	.195264E-03	3.56202	.001
MU_ZS	.148627E-03	.207497E-03	.716287	.479
MU_ZT	-.430002E-04	.154099E-04	-2.79042	.009

```
R-Squared=  .99495     No. obs=    35
R-Bar-Squared (adj)        =   .99428
Durbin-Watson (   0 gaps) =  1.445004
Sum of squared residuals =    .211084E-04
Std. error of regression =    .838816E-03
Sum of residuals =            .786141E-03
Mean of dependent variable =  .797323E-02
Log of likelihood function =  200.958


*** WARNING 190: Transformation at line 229.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.


         Nonlinear Least Squares

Convergence achieved after 2 iterations.


         Equation EB1

         Dependent variable is PCT5_7B1
```

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.164889E-01	.172237E-02	9.57336	.000
AB1_M	.802755E-01	.418946E-02	19.1613	.000
MU_B10	.207071E-01	.250457E-02	8.26772	.000
MU_B1F	.162312E-02	.130853E-02	1.24041	.226
MU_B1W	-.715381E-03	.671793E-03	-1.06488	.297
MU_B1S	-.395650E-03	.804061E-03	-.492065	.627
MU_B1T	.837339E-03	.361954E-03	2.31338	.029
MU_B1TM	.267200E-03	.247841E-03	1.07811	.291
MU_B1M	.192134E-01	.443506E-02	4.33216	.000
SIGB1	.362050E-02	.302106E-02	1.19842	.242

```
R-Squared=  .99411     No. obs=    35
R-Bar-Squared (adj)        =   .99199
Durbin-Watson (   0 gaps) =  1.982079
Sum of squared residuals =    .238165E-03
Std. error of regression =    .308652E-02
Sum of residuals =            .700480E-03
Mean of dependent variable =  .520650E-01
Log of likelihood function =  158.550


*** WARNING 191: Transformation at line 239.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 3 times.
```

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB3

Dependent variable is PCT5_7B3

Variable	Coefficient	Std Err	T-stat	Signf
MU_B30	.521697E-01	.907474E-03	57.4889	.000
MU_B3F	.211995E-02	.750839E-03	2.82344	.008
MU_B3W	-.270136E-02	.756967E-03	-3.56866	.001
MU_B3S	.116786E-02	.760231E-03	1.53618	.135
MU_B3T	.819924E-03	.515067E-04	15.9188	.000
MU_B3MC	.457382E-02	.113008E-02	4.04733	.000

R-Squared= .99319 No. obs= 35
R-Bar-Squared (adj) = .99201
Durbin-Watson (0 gaps) = 1.510470
Sum of squared residuals = .894260E-03
Std. error of regression = .555307E-02
Sum of residuals = -.205253E-03
Mean of dependent variable = .111487
Log of likelihood function = 135.397

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB5

Dependent variable is PCT5_7B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.179423	.566535E-01	3.16703	.004
MU_B50	.853956E-01	.101087	.844770	.406
MU_B5F	.873600E-02	.180578E-01	.483779	.633
MU_B5W	-.125419E-01	.293027E-01	-.428011	.672
MU_B5S	.118660E-01	.256219E-01	.463119	.647
MU_B5T	.760332E-02	.160105E-01	.474895	.639
MU_B5MT	-.454375E-02	.106713E-01	-.425791	.674
MU_B5MC	.636482E-01	.106197	.599344	.554
SIGB5	.596723E-01	.127152	.469300	.643

R-Squared= .84078 No. obs= 35
R-Bar-Squared (adj) = .79179
Durbin-Watson (0 gaps) = 1.207542

```
        Sum of squared residuals =     .314313E-02
        Std. error of regression =     .109950E-01
        Sum of residuals =            -.573429E-03
        Mean of dependent variable =   .108450
        Log of likelihood function =   113.400


           Nonlinear Least Squares

   Convergence achieved after 2 iterations.


           Equation EC

           Dependent variable is PCT5_7C

     Variable          Coefficient      Std Err        T-stat      Signf

   MU_C0                 .454982E-01   .319015E-02    14.2621       .000
   MU_CW                 .249955E-01   .381767E-02    6.54734       .000
   MU_CS                -.320733E-02   .353616E-02   -.907009       .372
   MU_CT                 .282861E-03   .343370E-03    .823777       .417
   MU_CTM               -.194216E-02   .769918E-03   -2.52255       .017


        R-Squared=  .95155     No. obs=    35
        R-Bar-Squared (adj)        =   .94509
        Durbin-Watson (   0 gaps) =  2.063880
        Sum of squared residuals =     .179790E-02
        Std. error of regression =     .774145E-02
        Sum of residuals =            -.295041E-06
        Mean of dependent variable =   .496611E-01
        Log of likelihood function =   123.176


   Constant TESTSTAT =    .206270E-10


288> print teststat iteration


   Constant TESTSTAT =    .206270E-10

   Constant ITERATION =    1.00000

289> !
289> fpct5_7n = an /
(1+exp(-(d5_7n-(mu_n0+mu_nf*fall+mu_nw*winter+mu_ns*spring+mu_nt*t+mu_ntm*t_mc95+mu_
nmc*mc95+oc5_7b1+oc5_7b3+oc5_7b5)) / ...
289> sign))
290> fpct5_7z = (az*(1-mc95)) /
(1+exp(-(d5_7z-(mu_z0-mu_zf*fall-mu_zw*winter-mu_zs*spring+mu_zt*t+oc5_7b3+oc5_7b5))
/ ...
290> sigz))
291> fpct5_7b1 = (ab1+ab1_m*mc95) / ...
```

```
291>
(1+exp(-(d5_7b1-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t+mu_b1tm*t_m
c95+mu_b1m*mc95+oc5_7n+mc95*oc5_7b3)) / ...
291> sigb1))
292> fpct5_7b3 = (ab30+ab31*d93q4+ab3_m*mc95) / ...
292>
(1+exp(-(d5_7b3-(mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring-mu_b3t*t+mu_b3tm*t_m
c95-mu_b3mc*mc95+oc5_7n+oc5_7z+mc95*oc5_7b1+oc5_7b5)) / ...
292> sigb3))
293> fpct5_7b5 = ab5 / ...
293>
(1+exp(-(d5_7b5-(mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_m
c95+mu_b5mc*mc95+oc5_7n+oc5_7z+oc5_7b3)) / ...
293> sigb5))
294> fpct5_7c = (ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95) / ...
294>
(1+exp(-(d5_7c-(mu_c0-mu_cf*fall-mu_cw*winter-mu_cs*spring-mu_ct*t-mu_ctm*t_mc95+mu_
cm*mc95)) / sigc))
295> !
295> pct5_7b = pct5_7b1 + pct5_7b3 + pct5_7b5
296> fpct5_7b = fpct5_7b1 + fpct5_7b3 + fpct5_7b5
297> pct5_7sp = 1 - pct5_7n - pct5_7z - pct5_7b - pct5_7c
298> fpct5_7sp = 1 - fpct5_7n - fpct5_7z - fpct5_7b - fpct5_7c
299> dot '5_7sp' '5_7n' '5_7b1' '5_7b3' '5_7b5' '5_7z' '5_7c' '5_7b'
300> ape: = sum(abs(fpct:/pct:-1)*pct:)
301> denom: = sum(pct:)
302> set mape: = ape: / denom:
303> enddot


  *** WARNING 241: Transformation at line 300.
  *** Divide by zero.  Result set to zero.
      Occurs 19 times.


304> !
304> print pct5_7sp fpct5_7sp
```

	PCT5_7SP	FPCT5_7SP
1993Q1	.628309	.628533
1993Q2	.606883	.557834
1993Q3	.606390	.627204
1993Q4	.565206	.597657
1994Q1	.612670	.602341
1994Q2	.561747	.537891
1994Q3	.586115	.598287
1994Q4	.557029	.579095
1995Q1	.589463	.579304
1995Q2	.506794	.514720
1995Q3	.556842	.571198
1995Q4	.542519	.551956
1996Q1	.568817	.551102
1996Q2	.493077	.491624
1996Q3	.554251	.548978
1996Q4	.542672	.530972

1997Q1	.539590	.551628
1997Q2	.472741	.486790
1997Q3	.536385	.523494
1997Q4	.513926	.511487
1998Q1	.547106	.524786
1998Q2	.457266	.483274
1998Q3	.507352	.521657
1998Q4	.501716	.514177
1999Q1	.503376	.519653
1999Q2	.449479	.461479
1999Q3	.525399	.496540
1999Q4	.510841	.486842
2000Q1	.507731	.499947
2000Q2	.460133	.445316
2000Q3	.504154	.485916
2000Q4	.490231	.479968
2001Q1	.491770	.501450
2001Q2	.443856	.454649
2001Q3	.472589	.497532

```
305> print mape5_7sp


  Constant MAPE5_7SP =    .293365E-01

306> page
307> print pct5_7n fpct5_7n
```

	PCT5_7N	FPCT5_7N
1993Q1	.184399	.179881
1993Q2	.172140	.179987
1993Q3	.184097	.179587
1993Q4	.186129	.179194
1994Q1	.175686	.179228
1994Q2	.183773	.179404
1994Q3	.179068	.178422
1994Q4	.189554	.177536
1995Q1	.164387	.177097
1995Q2	.168062	.178043
1995Q3	.177487	.174976
1995Q4	.178202	.173943
1996Q1	.165675	.173866
1996Q2	.170268	.174146
1996Q3	.173441	.168867
1996Q4	.151705	.151242
1997Q1	.132028	.127433
1997Q2	.146052	.136754
1997Q3	.128968	.128694
1997Q4	.131626	.123869
1998Q1	.113313	.124888
1998Q2	.108745	.117824
1998Q3	.113224	.110420
1998Q4	.101523	.101675
1999Q1	.118934	.109953
1999Q2	.123962	.118648
1999Q3	.942475E-01	.112767

1999Q4	.909885E-01	.106830
2000Q1	.106215	.108838
2000Q2	.124385	.122247
2000Q3	.118270	.111063
2000Q4	.106542	.101920
2001Q1	.999974E-01	.954460E-01
2001Q2	.947187E-01	.990762E-01
2001Q3	.905141E-01	.843147E-01

```
308> print mape5_7n


  Constant MAPE5_7N =    .438204E-01

309> page
310> print pct5_7z fpct5_7z
```

	PCT5_7Z	FPCT5_7Z
1993Q1	.365319E-01	.346976E-01
1993Q2	.429485E-01	.430274E-01
1993Q3	.272517E-01	.274663E-01
1993Q4	.210947E-01	.214156E-01
1994Q1	.170248E-01	.190730E-01
1994Q2	.165995E-01	.176837E-01
1994Q3	.148538E-01	.141275E-01
1994Q4	.129881E-01	.133738E-01
1995Q1	.130084E-01	.151270E-01
1995Q2	.929174E-02	.941644E-02
1995Q3	.122649E-01	.122076E-01
1995Q4	.119382E-01	.111981E-01
1996Q1	.131364E-01	.121173E-01
1996Q2	.139406E-01	.120600E-01
1996Q3	.123941E-01	.128214E-01
1996Q4	.379567E-02	.248095E-02
1997Q1	0.00000	0.00000
1997Q2	0.00000	0.00000
1997Q3	0.00000	0.00000
1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000
1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
311> print mape5_7z
```

```
  Constant MAPE5_7Z =   .515128E-01

312> page
313> print pct5_7b1 fpct5_7b1
```

	PCT5_7B1	FPCT5_7B1
1993Q1	.133615E-01	.845014E-02
1993Q2	.828535E-02	.121039E-01
1993Q3	.807809E-02	.120658E-01
1993Q4	.113482E-01	.123494E-01
1994Q1	.132168E-01	.116885E-01
1994Q2	.117332E-01	.139621E-01
1994Q3	.153461E-01	.140852E-01
1994Q4	.150685E-01	.143020E-01
1995Q1	.164556E-01	.142262E-01
1995Q2	.137507E-01	.157519E-01
1995Q3	.174421E-01	.158015E-01
1995Q4	.158224E-01	.158441E-01
1996Q1	.166869E-01	.158268E-01
1996Q2	.161390E-01	.161818E-01
1996Q3	.169427E-01	.161956E-01
1996Q4	.533006E-01	.535753E-01
1997Q1	.597059E-01	.596138E-01
1997Q2	.693980E-01	.719120E-01
1997Q3	.724435E-01	.754706E-01
1997Q4	.762254E-01	.748284E-01
1998Q1	.720505E-01	.713152E-01
1998Q2	.863981E-01	.799853E-01
1998Q3	.835818E-01	.827854E-01
1998Q4	.780768E-01	.827351E-01
1999Q1	.795100E-01	.779617E-01
1999Q2	.829774E-01	.852657E-01
1999Q3	.915715E-01	.868154E-01
1999Q4	.904113E-01	.869318E-01
2000Q1	.806281E-01	.838725E-01
2000Q2	.903093E-01	.890690E-01
2000Q3	.912896E-01	.895207E-01
2000Q4	.898758E-01	.889383E-01
2001Q1	.827869E-01	.863914E-01
2001Q2	.900285E-01	.922885E-01
2001Q3	.920278E-01	.934625E-01

```
314> print mape5_7b1

  Constant MAPE5_7B1 =   .403434E-01

315> page
316> print pct5_7b3 fpct5_7b3
```

	PCT5_7B3	FPCT5_7B3

1993Q1	.207292E-01	.213521E-01
1993Q2	.220751E-01	.280117E-01
1993Q3	.296016E-01	.232195E-01
1993Q4	.444305E-01	.412021E-01
1994Q1	.386685E-01	.402112E-01
1994Q2	.451086E-01	.500280E-01
1994Q3	.452158E-01	.431625E-01
1994Q4	.456374E-01	.451530E-01
1995Q1	.350162E-01	.439483E-01
1995Q2	.498353E-01	.562139E-01
1995Q3	.526176E-01	.475550E-01
1995Q4	.567564E-01	.509369E-01
1996Q1	.500226E-01	.511097E-01
1996Q2	.618393E-01	.606059E-01
1996Q3	.582278E-01	.539974E-01
1996Q4	.107711	.105676
1997Q1	.140743	.133405
1997Q2	.153281	.152745
1997Q3	.141171	.145143
1997Q4	.148204	.151542
1998Q1	.138842	.145318
1998Q2	.172837	.161421
1998Q3	.151705	.152175
1998Q4	.158011	.157776
1999Q1	.155718	.153569
1999Q2	.175327	.173557
1999Q3	.169461	.168405
1999Q4	.169711	.173647
2000Q1	.160760	.166153
2000Q2	.175383	.186012
2000Q3	.170207	.177817
2000Q4	.184669	.184163
2001Q1	.183986	.175770
2001Q2	.197972	.194426
2001Q3	.190553	.186892

```
317> print mape5_7b3


  Constant MAPE5_7B3 =    .364425E-01

318> page
319> print pct5_7b5 fpct5_7b5
```

	PCT5_7B5	FPCT5_7B5
1993Q1	.476221E-01	.525020E-01
1993Q2	.553358E-01	.721757E-01
1993Q3	.638485E-01	.599425E-01
1993Q4	.884262E-01	.732978E-01
1994Q1	.685389E-01	.725217E-01
1994Q2	.887008E-01	.937343E-01
1994Q3	.827087E-01	.808436E-01
1994Q4	.104910	.952966E-01
1995Q1	.101550	.949897E-01
1995Q2	.114809	.116544

1995Q3	.115885	.104301
1995Q4	.121231	.117810
1996Q1	.105428	.117536
1996Q2	.134265	.135108
1996Q3	.118920	.124815
1996Q4	.100797	.111426
1997Q1	.103708	.989201E-01
1997Q2	.117796	.115791
1997Q3	.953486E-01	.100758
1997Q4	.102396	.111321
1998Q1	.106106	.107438
1998Q2	.135121	.123468
1998Q3	.118954	.109215
1998Q4	.132502	.119387
1999Q1	.121469	.115319
1999Q2	.137428	.129462
1999Q3	.103170	.114942
1999Q4	.116528	.124735
2000Q1	.123425	.120933
2000Q2	.128402	.135239
2000Q3	.103387	.122177
2000Q4	.113846	.131135
2001Q1	.128805	.127602
2001Q2	.154351	.139500
2001Q3	.140022	.126126

```
320> print mape5_7b5


  Constant MAPE5_7B5 =    .738838E-01

321> page
322> print pct5_7b fpct5_7b
```

	PCT5_7B	FPCT5_7B
1993Q1	.817128E-01	.823043E-01
1993Q2	.856963E-01	.112291
1993Q3	.101528	.952277E-01
1993Q4	.144205	.126849
1994Q1	.120424	.124421
1994Q2	.145543	.157724
1994Q3	.143271	.138091
1994Q4	.165616	.154752
1995Q1	.153021	.153164
1995Q2	.178395	.188510
1995Q3	.185945	.167658
1995Q4	.193810	.184591
1996Q1	.172138	.184473
1996Q2	.212243	.211896
1996Q3	.194091	.195008
1996Q4	.261809	.270677
1997Q1	.304157	.291939
1997Q2	.340475	.340448
1997Q3	.308963	.321371
1997Q4	.326826	.337692
1998Q1	.316999	.324071

1998Q2	.394356	.364874
1998Q3	.354241	.344176
1998Q4	.368590	.359899
1999Q1	.356697	.346850
1999Q2	.395733	.388284
1999Q3	.364203	.370162
1999Q4	.376650	.385314
2000Q1	.364813	.370958
2000Q2	.394094	.410320
2000Q3	.364884	.389515
2000Q4	.388390	.404236
2001Q1	.395578	.389763
2001Q2	.442351	.426214
2001Q3	.422602	.406480

```
323> print mape5_7b


  Constant MAPE5_7B =    .385468E-01

324> page
325> print pct5_7c fpct5_7c
```

	PCT5_7C	FPCT5_7C
1993Q1	.690477E-01	.745842E-01
1993Q2	.923319E-01	.106860
1993Q3	.807340E-01	.705150E-01
1993Q4	.833655E-01	.748842E-01
1994Q1	.741947E-01	.749366E-01
1994Q2	.923383E-01	.107296
1994Q3	.766927E-01	.710715E-01
1994Q4	.748134E-01	.752431E-01
1995Q1	.801198E-01	.753079E-01
1995Q2	.137457	.109310
1995Q3	.674610E-01	.739613E-01
1995Q4	.735309E-01	.783122E-01
1996Q1	.802338E-01	.784412E-01
1996Q2	.110471	.110274
1996Q3	.658229E-01	.743258E-01
1996Q4	.400193E-01	.446279E-01
1997Q1	.242251E-01	.290001E-01
1997Q2	.407326E-01	.360079E-01
1997Q3	.256839E-01	.264408E-01
1997Q4	.276225E-01	.269527E-01
1998Q1	.225822E-01	.262550E-01
1998Q2	.396336E-01	.340288E-01
1998Q3	.251829E-01	.237472E-01
1998Q4	.281714E-01	.242496E-01
1999Q1	.209937E-01	.235436E-01
1999Q2	.308262E-01	.315888E-01
1999Q3	.161507E-01	.205322E-01
1999Q4	.215199E-01	.210142E-01
2000Q1	.212407E-01	.202560E-01
2000Q2	.213876E-01	.221163E-01
2000Q3	.126922E-01	.135056E-01
2000Q4	.148366E-01	.138752E-01

```
  2001Q1                .126545E-01     .133407E-01
  2001Q2                .190742E-01     .200605E-01
  2001Q3                .142951E-01     .116734E-01

326> print mape5_7c


  Constant MAPE5_7C =    .928588E-01

327> page
328> !
328> use 1976q4 2001q3
329> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
330> pct: = vol: / (vol05sp+vol5_7n+vol5_7z+vol5_7b1+vol5_7b3+vol5_7b5+vol5_7c)
331> enddot
332> !
332> use 1976q4 2016q1
333> a5_7n = an
334> a5_7z = az*(1-mc95)
335> a5_7b1 = (ab1+ab1_m*mc95)
336> a5_7b3 = (ab30+ab31*d93q4+ab3_m*mc95)
337> a5_7b5 = ab5
338> a5_7c = (ac*(1-mc95)+ac*(cpct0-cpct1*d2000q2)*mc95)
339> !
339> mu5_7n = sign*ln((a5_7n/pct5_7n)-1) + d5_7n


  *** WARNING 190: Transformation at line 339.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 58 times.

  *** WARNING 191: Transformation at line 339.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 65 times.

340> mu5_7z = sigz*ln((a5_7z/pct5_7z)-1) + d5_7z


  *** WARNING 190: Transformation at line 340.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 108 times.

341> mu5_7b1 = sigb1*ln((a5_7b1/pct5_7b1)-1) + d5_7b1


  *** WARNING 190: Transformation at line 341.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 116 times.

  *** WARNING 191: Transformation at line 341.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 3 times.
```

```
342> mu5_7b3 = sigb3*ln((a5_7b3/pct5_7b3)-1) + d5_7b3


  *** WARNING 190: Transformation at line 342.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 116 times.

343> mu5_7b5 = sigb5*ln((a5_7b5/pct5_7b5)-1) + d5_7b5


  *** WARNING 190: Transformation at line 343.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 105 times.

344> mu5_7c = sigc*ln((a5_7c/pct5_7c)-1) + d5_7c


  *** WARNING 190: Transformation at line 344.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 78 times.

345> !
345> dot n z b1 b3 b5 c
346> set sig5_7: = sig:
347> enddot


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7N as different type of item.


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7Z as different type of item.


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7B1 as different type of item.


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7B3 as different type of item.


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7B5 as different type of item.


  *** WARNING 198: Command SET at line 346.
  *** Redefined SIG5_7C as different type of item.


348> !
348> dot '5_7n' '5_7z' '5_7b1' '5_7b3' '5_7b5' '5_7c'
349> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
350> zpct = 1 / (1 + exp(mu:/sig:))
```

```
351> gzpct = (napct-zpct)/napct
352> lzpct = 1 - gzpct
353> totbar = d: + sig:*log(1 - napct)/napct
354> lzbar = sig:*log(1 - zpct)/zpct
355> u: = (totbar - lzbar*lzpct)
356> enddot
357> use 1976q4 2001q3
358> u5_7 =
u5_7n*pct5_7n+u5_7z*pct5_7z+u5_7b1*pct5_7b1+u5_7b3*pct5_7b3+u5_7b5*pct5_7b5+u5_7c*pc
t5_7c
359> u5_7ws = u5_7 / (pct5_7n + pct5_7z + pct5_7b1 + pct5_7b3 + pct5_7b5 + pct5_7c)
360> !
360> revise px5_7wsu = ln(exp(px5_7ws)+u5_7ws)
361> revise px5_7u = ln(exp(px5_7)+u5_7)
362> replace u5_7ws u5_7 px5_7wsu px5_7u
363> p u5_7ws u5_7
```

	U5_7WS	U5_7
1976Q4	.104131E-01	.589424E-03
1977Q1	.247305E-02	.530042E-03
1977Q2	.246004E-02	.496448E-03
1977Q3	.244651E-02	.470363E-03
1977Q4	.243263E-02	.487008E-03
1978Q1	.241931E-02	.767586E-03
1978Q2	.240508E-02	.526127E-03
1978Q3	.238699E-02	.493640E-03
1978Q4	.236784E-02	.549351E-03
1979Q1	.234854E-02	.491369E-03
1979Q2	.776129E-02	.105460E-02
1979Q3	.230496E-02	.520306E-03
1979Q4	.227632E-02	.500654E-03
1980Q1	.224628E-02	.638664E-03
1980Q2	.221280E-02	.575510E-03
1980Q3	.218340E-02	.583759E-03
1980Q4	.215331E-02	.624439E-03
1981Q1	.212183E-02	.456901E-03
1981Q2	.209197E-02	.745250E-03
1981Q3	.206919E-02	.485010E-03
1981Q4	.222822E-02	.631572E-03
1982Q1	.245400E-02	.469132E-03
1982Q2	.312401E-02	.836369E-03
1982Q3	.302382E-02	.697427E-03
1982Q4	.260136E-02	.980055E-03
1983Q1	.300712E-02	.657276E-03
1983Q2	.320390E-02	.101254E-02
1983Q3	.303232E-02	.750149E-03
1983Q4	.300133E-02	.975717E-03
1984Q1	.280822E-02	.698591E-03
1984Q2	.301988E-02	.971696E-03
1984Q3	.300780E-02	.696960E-03
1984Q4	.280182E-02	.856102E-03
1985Q1	.350872E-02	.648770E-03
1985Q2	.349119E-02	.869051E-03
1985Q3	.355832E-02	.909861E-03
1985Q4	.362512E-02	.921535E-03
1986Q1	.416916E-02	.143358E-02

1986Q2	.633396E-02	.126622E-02
1986Q3	.351054E-02	.114947E-02
1986Q4	.442921E-02	.127694E-02
1987Q1	.335241E-02	.882175E-03
1987Q2	.319625E-02	.105363E-02
1987Q3	.396784E-02	.124785E-02
1987Q4	.385267E-02	.939183E-03
1988Q1	.312607E-02	.916562E-03
1988Q2	.271889E-02	.111951E-02
1988Q3	.650763E-02	.188129E-02
1988Q4	.506747E-02	.122468E-02
1989Q1	.471006E-02	.154723E-02
1989Q2	.597709E-02	.202251E-02
1989Q3	.675116E-02	.219979E-02
1989Q4	.607733E-02	.207542E-02
1990Q1	.619220E-02	.199236E-02
1990Q2	.886825E-02	.326098E-02
1990Q3	.711285E-02	.245483E-02
1990Q4	.746515E-02	.296340E-02
1991Q1	.633684E-02	.291986E-02
1991Q2	.751344E-02	.345917E-02
1991Q3	.727382E-02	.347108E-02
1991Q4	.727552E-02	.308305E-02
1992Q1	.845325E-02	.313990E-02
1992Q2	.712402E-02	.275049E-02
1992Q3	.817202E-02	.320518E-02
1992Q4	.740408E-02	.275525E-02
1993Q1	.902268E-02	.335365E-02
1993Q2	.986086E-02	.387647E-02
1993Q3	.859840E-02	.338442E-02
1993Q4	.858342E-02	.373202E-02
1994Q1	.880609E-02	.341086E-02
1994Q2	.823390E-02	.360853E-02
1994Q3	.772513E-02	.319732E-02
1994Q4	.777717E-02	.344506E-02
1995Q1	.851584E-02	.349607E-02
1995Q2	.740504E-02	.365221E-02
1995Q3	.751826E-02	.333177E-02
1995Q4	.763695E-02	.349376E-02
1996Q1	.900080E-02	.388099E-02
1996Q2	.786304E-02	.398596E-02
1996Q3	.795633E-02	.354653E-02
1996Q4	.138016E-01	.631184E-02
1997Q1	.177805E-01	.818633E-02
1997Q2	.157688E-01	.831424E-02
1997Q3	.179712E-01	.833174E-02
1997Q4	.174746E-01	.849397E-02
1998Q1	.177871E-01	.805568E-02
1998Q2	.152135E-01	.825691E-02
1998Q3	.169182E-01	.833472E-02
1998Q4	.162557E-01	.809994E-02
1999Q1	.165602E-01	.822418E-02
1999Q2	.150259E-01	.827206E-02
1999Q3	.164365E-01	.780075E-02
1999Q4	.159564E-01	.780520E-02
2000Q1	.158097E-01	.778265E-02
2000Q2	.145562E-01	.785839E-02
2000Q3	.153963E-01	.763419E-02

```
   2000Q4                .149335E-01    .761261E-02
   2001Q1                .145505E-01    .739501E-02
   2001Q2                .128899E-01    .716862E-02
   2001Q3                .136166E-01    .718154E-02

364> !
364> use 1997q1 2016q1
365> mu5_7n =
mu_n0+mu_nf*fall+mu_nw*winter+mu_ns*spring+mu_nt*t+mu_ntm*t_mc95+mu_nmc*mc95
366> mu5_7b1 =
mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring-mu_b1t*t+mu_b1tm*t_mc95+mu_b1m*mc95
367> mu5_7b3 =
mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring-mu_b3t*t+mu_b3tm*t_mc95-mu_b3mc*mc95
368> mu5_7b5 =
mu_b50+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring-mu_b5t*t-mu_b5mt*t_mc95+mu_b5mc*mc95
369> mu5_7c =
mu_c0-mu_cf*fall-mu_cw*winter-mu_cs*spring-mu_ct*t-mu_ctm*t_mc95+mu_cm*mc95
370> punchdif('mu5_7') a5_7n a5_7b1 a5_7b3 a5_7b5 a5_7c ...
370> mu5_7n mu5_7b1 mu5_7b3 mu5_7b5 mu5_7c ...
370> sig5_7n sig5_7b1 sig5_7b3 sig5_7b5 sig5_7c


  *** File deleted ( 2): mu5_7.dif
  *** File created ( 2): mu5_7.dif
  *** File closed  ( 2): mu5_7.dif

371> !
```

Standard Regular

```
Soritec Log File
Thursday, June 07, 2001 15:00:42

3> access rcf_r2001


  *** File opened  ( 1): rcf_r2001.sdb

4> !
4> use 1976q4 2001q3
5> dot '19n_1' '19z' '19b'
6> pct: = vol: / (vol19n_1+vol19z+vol19b)
7> enddot
8> dot '19n_nl' '19f'
9> pct: = vol: / (vol19n_nl+vol19f)
10> enddot


  *** WARNING 190: Transformation at line 9.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


  *** WARNING 190: Transformation at line 9.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


11> dot '21n_1' '21z' '21b3' '21b5'
12> pct: = vol: / (vol21n_1+vol21z+vol21b3+vol21b5)
13> enddot


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
```

```
      Occurs 19 times.


14> dot '21n_nl' '21f'
15> pct: = vol: / (vol21n_nl+vol21f)
16> enddot


  *** WARNING 190: Transformation at line 15.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


  *** WARNING 190: Transformation at line 15.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


17> !
17> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
18> d: = d: / pc
19> enddot
20> !
20> use 1993q1 2016q1
21> dummy fall  1993q1 4
22> dummy winter 1993q2 4
23> dummy spring 1993q3 4
24> dummy summer 1993q4 4
25> dummy d96q4 1996q4
26> dummy mc95 1996q4 1
27> time t
28> t = t - 1
29> tz = t
30> t_mc95 = t - 15
31> use 1993q1 1996q4
32> revise t_mc95 = 0
33> use 1996q4
34> revise mc95 = (60/88)
35> use 1994q4 2016q1
36> revise tz = 6
37> !
37> use 2004q1
38> t_inc = 1
39> on dynamic
40> use 2004q2 2005q1
41> revise t_inc = t_inc{-1} - .05
42> use 2005q2 2016q1
43> revise t_inc = t_inc{-1} - .075
44> use 2004q1 2016q1
45> t_inc = t_inc*(t_inc>=0)
46> revise t = t{-1} + t_inc
47> revise t_mc95 = t_mc95{-1} + t_inc
48> use 2001q3 2016q1
49> revise d_r97 = d_r97{-1}
50> !
50> use 1993q1 2001q3
```

```
51> equation eb1 pct19b = (ab1+ab1_m*mc95) / ...
51>
(1+exp(-(d19b-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+mu_b1tm*t_mc9
5+mu_b1mc*mc95)) / ...
51> sigb1))+ ...
51> 100000*((1-ab1)-abs(1-ab1)) + ...
51> 100000*(sigb1 - abs(sigb1))
51> parameter ab1 .798565 ab1_m 0 mu_b10 .0519677 mu_b1f .00328795 mu_b1w -.00505552
mu_b1s .00408043 ...
51> mu_b1t -.00235213 mu_b1tm -.00390596 mu_b1mc .00982146 sigb1 .0300518
52> !
52> equation ez1 pct19z = (az1*(1-mc95)) / ...
52>
(1+exp(-(d19z-(mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t94*tz+mu_z1t*t))
/ ...
52> sigz1)) + ...
52> 100000*((1-az1)-abs(1-az1)) + ...
52> 100000*(sigz1 - abs(sigz1))
52> parameter az1 .06 mu_z10 0.119668 mu_z1f .00517774 mu_z1w .00746345 mu_z1s
.00467936 ...
52> mu_z1t 0.00321255 sigz1 .005
53> !
53> equation eb3 pct21b3 = (ab3+ab3_m*mc95-ab3_97*d_r97) / ...
53>
(1+exp(-(d21b3-(mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+mu_b3tm*t_mc
95+mu_b3mc*mc95+oc21z+(1/(ab3+ab3_m*mc95))*oc21b5)) / ...
53> sigb3))+ ...
53> 100000*((1-(ab3+ab3_m-ab3_97))-abs(1-(ab3+ab3_m-ab3_97))) + ...
53> 100000*(sigb3 - abs(sigb3))
53> parameter ab3 .2 ab3_m .45 ab3_97 .1 mu_b30 -.0028337 mu_b3f .00379 mu_b3w
-.0023148 mu_b3s 0 ...
53> mu_b3t -.000960 mu_b3tm .0004128 mu_b3mc .0115603 sigb3 .0113713
54> !
54> equation eb5 pct21b5 = (ab5-ab5_m*mc95+ab5_97*d_r97) / ...
54>
(1+exp(-(d21b5-(mu_b50+mu_b596*d96q4+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*
t+mu_b5tm*t_mc95+mu_b5mc*mc95+oc21z+(1/ab5)*oc21b3)) / ...
54> sigb5))+ ...
54> 100000*((1-(ab5-ab5_m*mc95+ab5_97))-abs(1-(ab5-ab5_m*mc95+ab5_97))) + ...
54> 100000*(sigb5 - abs(sigb5))
54> parameter ab5 .5 ab5_m .2 ab5_97 .15 sigb5 .04
55> !
55> equation ez3 pct21z = (az3*(1-mc95)) / ...
55>
(1+exp(-(d21z-(mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t94*tz+mu_z3t*t+o
c21b3+oc21b5)) / ...
55> sigz3)) + ...
55> 100000*((1-az3)-abs(1-az3)) + ...
55> 100000*(sigz3 - abs(sigz3))
55> parameter az3 .17 mu_z30 0.124338 mu_z3f 0 mu_z3w .00699441 mu_z3s 0 ...
55> mu_z3t 0.00254178 sigz3 .0370420
56> !
56> equation ef1 pct19f = af1 / ...
56>
(1+exp(-(d19f-(mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc9
5+mu_f1mc*mc95)) / ...
56> sigf1))+ ...
56> 100000*((1-af1)-abs(1-af1)) + ...
```

```
56> 100000*(sigf1 - abs(sigf1))
56> parameter af1 .879308 mu_f10 .212004 mu_f1f 0 mu_f1w -.00447218 mu_f1s 0 ...
56> mu_f1t -.00402295 mu_f1tm .00275467 mu_f1mc -.0381315 sigf1 .0601885
57> !
57> equation ef3 pct21f = af3 / ...
57>
(1+exp(-(d21f-(mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc9
5+mu_f3mc*mc95)) / ...
57> sigf3))+ ...
57> 100000*((1-af3)-abs(1-af3)) + ...
57> 100000*(sigf3 - abs(sigf3))
57> parameter af3 .867460 mu_f30 .00678197 mu_f3f 0 mu_f3w 0 mu_f3s 0 ...
57> mu_f3t -.00412262 mu_f3tm 0 mu_f3mc 0 sigf3 .0419495
58> !
58> use 1993q1 2001q3
59> mu19z = sigz1*ln(((az1*(1-mc95))/pct19z)-1) + d19z


  *** WARNING 190: Transformation at line 59.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.

60> mu19b = sigb1*ln(((ab1+ab1_m*mc95)/pct19b)-1) + d19b
61> mu21z = sigz3*ln(((az3*(1-mc95))/pct21z)-1) + d21z


  *** WARNING 190: Transformation at line 61.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.

62> mu21b3 = sigb3*ln(((ab3+ab3_m*mc95-ab3_97*d_r97)/pct21b3)-1) + d21b3
63> mu21b5 = sigb5*ln(((ab5-ab5_m*mc95+ab5_97*d_r97)/pct21b5)-1) + d21b5
64> mu19f = sigf1*ln((af1/pct19f)-1) + d19f
65> mu21f = sigf3*ln((af3/pct21f)-1) + d21f


  *** WARNING 191: Transformation at line 65.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 7 times.

66> set sig19z = sigz1
67> set sig19b = sigb1
68> set sig21z = sigz3
69> set sig21b3 = sigb3
70> set sig21b5 = sigb5
71> set sig19f = sigf1
72> set sig21f = sigf3
73> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
74> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
75> zpct = 1 / (1 + exp(mu:/sig:))
76> gzpct = (napct-zpct)/napct
77> lzpct = 1 - gzpct
78> totbar = d: + sig:*log(1 - napct)/napct
79> lzbar = sig:*log(1 - zpct)/zpct
80> ubar = (totbar - lzbar*lzpct)
```

```
81> oc: = (d: - ubar)*pct:
82> enddot
83> !
83> mu21z = mu21z - oc21b3 - oc21b5
84> mu21b3 = mu21b3 - oc21z - (1/(ab3+ab3_m*mc95))*oc21b5
85> mu21b5 = mu21b5 - oc21z - (1/ab5)*oc21b3
86> dot '19b' '19f' '21f' '21b3'
87> regress mu: fall winter spring t mc95 t_mc95
88> parameter mu_:0 = ^coef(1)
89> parameter mu_:f = ^coef(2)
90> parameter mu_:w = ^coef(3)
91> parameter mu_:s = ^coef(4)
92> parameter mu_:t = ^coef(5)
93> parameter mu_:mc = ^coef(6)
94> parameter mu_:tm = ^coef(7)
95> enddot
```

REGRESS : dependent variable is MU19B

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.429587E-01	.509244E-02	8.43578	.000
FALL	.584595E-02	.417339E-02	1.40077	.172
WINTER	.159824E-02	.416760E-02	.383491	.704
SPRING	.154808E-02	.418403E-02	.369996	.714
T	-.828939E-03	.509503E-03	-1.62696	.115
MC95	.646400E-02	.622075E-02	1.03910	.308
T_MC95	-.429145E-02	.603157E-03	-7.11497	.000

Equation Summary

No. of Observations =	35	R2= .9492	(adj)= .9384
Sum of Sq. Resid. =	.204591E-02	Std. Error of Reg.=	.854799E-02
Log(likelihood) =	120.914	Durbin-Watson =	1.00220
Schwarz Criterion =	108.471	F (6, 28) =	87.2648
Akaike Criterion =	113.914	Significance =	.000000

REGRESS : dependent variable is MU19F

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.216110	.660676E-02	32.7105	.000
FALL	-.345872E-03	.541441E-02	-.638798E-01	.950
WINTER	-.453055E-02	.540690E-02	-.837921	.409
SPRING	-.584081E-02	.542822E-02	-1.07601	.291
T	-.395029E-02	.661012E-03	-5.97612	.000
MC95	-.358027E-01	.807059E-02	-4.43620	.000
T_MC95	.222385E-02	.782515E-03	2.84192	.008

Equation Summary

No. of Observations =	35	R2= .9509 (adj)=	.9403
Sum of Sq. Resid. =	.344358E-02	Std. Error of Reg.=	.110899E-01
Log(likelihood) =	111.803	Durbin-Watson =	.89774
Schwarz Criterion =	99.3588	F (6, 28) =	90.2933
Akaike Criterion =	104.803	Significance =	.000000

REGRESS : dependent variable is MU21F

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.199806E-01	.246236E-01	.811440	.424
FALL	.156351E-02	.201797E-01	.774795E-01	.939
WINTER	-.420648E-02	.201517E-01	-.208741	.836
SPRING	-.290173E-01	.202311E-01	-1.43429	.163
T	-.353475E-02	.246361E-02	-1.43479	.162
MC95	-.428689E-01	.300793E-01	-1.42519	.165
T_MC95	.603890E-02	.291646E-02	2.07063	.048

Equation Summary

No. of Observations =	35	R2= .3917 (adj)=	.2614
Sum of Sq. Resid. =	.478339E-01	Std. Error of Reg.=	.413322E-01
Log(likelihood) =	65.7561	Durbin-Watson =	1.04479
Schwarz Criterion =	53.3124	F (6, 28) =	3.00540
Akaike Criterion =	58.7561	Significance =	.021447

REGRESS : dependent variable is MU21B3

Using 1993Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	-.311418E-01	.372292E-02	-8.36487	.000
FALL	.503668E-02	.305104E-02	1.65081	.110
WINTER	-.302823E-02	.304680E-02	-.993907	.329
SPRING	.148355E-02	.305862E-02	.485009	.631
T	-.149733E-02	.372482E-03	-4.01986	.000
MC95	.403663E-01	.454779E-02	8.87601	.000
T_MC95	.582967E-03	.440949E-03	1.32207	.197

Equation Summary

No. of Observations =	35	R2= .8078 (adj)=	.7666
Sum of Sq. Resid. =	.109346E-02	Std. Error of Reg.=	.624916E-02
Log(likelihood) =	131.878	Durbin-Watson =	.92490
Schwarz Criterion =	119.434	F (6, 28) =	19.6140
Akaike Criterion =	124.878	Significance =	.000000

96> regress mu21b5 fall winter spring t mc95 t_mc95 d96q4

```
REGRESS : dependent variable is MU21B5

Using   1993Q1-2001Q3
```

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	-.295813E-01	.846577E-02	-3.49423	.002
FALL	.414775E-02	.713784E-02	.581092	.566
WINTER	-.165828E-02	.711999E-02	-.232905	.818
SPRING	.107087E-02	.713784E-02	.150028	.882
T	-.107639E-02	.849743E-03	-1.26672	.216
MC95	.523677E-01	.103102E-01	5.07923	.000
T_MC95	-.452314E-02	.103166E-02	-4.38432	.000
D96Q4	-.207117	.157895E-01	-13.1174	.000

Equation Summary

No. of Observations =	35	R2= .9014	(adj)= .8758
Sum of Sq. Resid. =	.538879E-02	Std. Error of Reg.=	.141275E-01
Log(likelihood) =	103.966	Durbin-Watson =	1.27820
Schwarz Criterion =	89.7444	F (7, 27) =	35.2638
Akaike Criterion =	95.9658	Significance =	.000000

```
97> parameter mu_21b50 = ^coef(1)
98> parameter mu_21b5f = ^coef(2)
99> parameter mu_21b5w = ^coef(3)
100> parameter mu_21b5s = ^coef(4)
101> parameter mu_21b5t = ^coef(5)
102> parameter mu_21b5mc = ^coef(6)
103> parameter mu_21b5tm = ^coef(7)
104> parameter mu_b596 = ^coef(8)
105> use 1993q1 1996q3
106> dot '19z' '21z'
107> regress mu: fail winter spring t tz
108> parameter mu_:0 = ^coef(1)
109> parameter mu_:f = ^coef(2)
110> parameter mu_:w = ^coef(3)
111> parameter mu_:s = ^coef(4)
112> parameter mu_:t = ^coef(5)
113> parameter mu_:t94 = ^coef(6)
114> enddot


REGRESS : dependent variable is MU19Z

Using   1993Q1-1996Q3
```

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.556064E-02	.100334E-02	5.54215	.000
FALL	.184161E-03	.865374E-03	.212811	.836
WINTER	.424310E-03	.857731E-03	.494689	.633
SPRING	-.355249E-03	.856259E-03	-.414885	.688
T	.674583E-03	.128583E-03	5.24627	.001
TZ	.505271E-03	.276085E-03	1.83013	.100

```
                              Equation Summary
    No. of Observations =       15        R2=    .9514   (adj)=    .9245
    Sum of Sq. Resid. =    .110568E-04    Std. Error of Reg.=   .110839E-02
    Log(likelihood)   =    84.6198        Durbin-Watson     =   1.39797
    Schwarz Criterion =    76.4956        F (  5,    9)     =   35.2749
    Akaike Criterion  =    78.6198        Significance      =   .000012


  REGRESS : dependent variable is MU21Z

  Using   1993Q1-1996Q3


     Variable          Coefficient      Std Err         T-stat       Signf

  ^CONST                 .636471E-01   .435083E-02     14.6287        .000
  FALL                  -.667861E-02   .375258E-02    -1.77974        .109
  WINTER                 .174774E-02   .371943E-02     .469893        .650
  SPRING                -.564695E-02   .371305E-02    -1.52084        .163
  T                      .459394E-02   .557584E-03     8.23901        .000
  TZ                    -.411923E-02   .119721E-02    -3.44070        .007


                              Equation Summary
    No. of Observations =       15        R2=    .9331   (adj)=    .8960
    Sum of Sq. Resid. =    .207913E-03    Std. Error of Reg.=   .480640E-02
    Log(likelihood)   =    62.6142        Durbin-Watson     =   2.23968
    Schwarz Criterion =    54.4901        F (  5,    9)     =   25.1107
    Akaike Criterion  =    56.6142        Significance      =   .000049


115> !
115> dot 0 f w s t tm mc
116> parameter mu_b1: = mu_19b:
117> parameter mu_b3: = mu_21b3:
118> parameter mu_b5: = mu_21b5:
119> parameter mu_f1: = mu_19f:
120> parameter mu_f3: = mu_21f:
121> enddot
122> dot 0 f w s t t94
123> parameter mu_z1: = mu_19z:
124> parameter mu_z3: = mu_21z:
125> enddot
126> !
126> use 1993q1 2001q3
127> dot ab1_m mu_b1w mu_b1mc ...
127> mu_b3w mu_b3mc mu_b3tm mu_b5w mu_b5t ...
127> mu_z1f mu_z1w mu_z1s mu_z3w ...
127> muf3_f muf3_w mu_f3tm mu_f3mc mu_f1f mu_f1w mu_f1s
128> constant : = 0
129> enddot


  *** WARNING 198: Command CONSTANT at line 128.
  *** Redefined AB1_M as different type of item.
```

```
*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B1W as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B1MC as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B3W as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B3MC as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B3TM as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B5W as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_B5T as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_Z1F as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_Z1W as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_Z1S as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_Z3W as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_F3TM as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_F3MC as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_F1F as different type of item.

*** WARNING 198: Command CONSTANT at line 128.
*** Redefined MU_F1W as different type of item.
```

```
  *** WARNING 198: Command CONSTANT at line 128.
  *** Redefined MU_F1S as different type of item.


130> dot mu_b10 mu_b1f mu_b1s mu_b1t mu_b1tm mu_z10 mu_z1t mu_z1t94 mu_z30 mu_z3f
mu_z3s mu_z3t94 mu_z3t ...
130> mu_f10 mu_f1t mu_f1mc mu_f1tm mu_f30 mu_f3t
131> constant : = :
132> enddot


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_B10 as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_B1F as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_B1S as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_B1T as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_B1TM as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z10 as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z1T as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z1T94 as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z30 as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z3F as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
  *** Redefined MU_Z3S as different type of item.


  *** WARNING 198: Command CONSTANT at line 131.
```

```
*** Redefined MU_Z3T94 as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_Z3T as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F10 as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F1T as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F1MC as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F1TM as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F30 as different type of item.


*** WARNING 198: Command CONSTANT at line 131.
*** Redefined MU_F3T as different type of item.

133> regress eb1

          Nonlinear Least Squares

  Convergence achieved after 3 iterations.

          Equation EB1

          Dependent variable is PCT19B

     Variable          Coefficient      Std Err        T-stat      Signf

 AB1                     .786758       .838015E-02    93.8835       .000
 SIGB1                   .311464E-01   .153830E-02    20.2473       .000


       R-Squared=  .98309     No. obs=    35
       R-Bar-Squared (adj)        =   .98258
       Durbin-Watson (   0 gaps) =  1.226718
       Sum of squared residuals =    .285001E-01
       Std. error of regression =    .293877E-01
       Sum of residuals =           -.515569E-02
       Mean of dependent variable =  .524549
```

```
        Log of likelihood function =  74.8181

134> regress ez1

           Nonlinear Least Squares

  Convergence achieved after 2 iterations.

           Equation EZ1

           Dependent variable is PCT19Z

     Variable          Coefficient      Std Err        T-stat      Signf

  AZ1                    .593839E-01   .107369E-02    55.3084       .000
  SIGZ1                  .505229E-02   .223753E-03    22.5798       .000


        R-Squared=  .98407     No. obs=    35
        R-Bar-Squared (adj)        =   .98359
        Durbin-Watson (   0 gaps) =  1.410810
        Sum of squared residuals =    .908887E-04
        Std. error of regression =    .165958E-02
        Sum of residuals =            .119358E-02
        Mean of dependent variable =  .963584E-02
        Log of likelihood function =  175.409

135> regress ez3

           Nonlinear Least Squares

  Convergence achieved after 3 iterations.

           Equation EZ3

           Dependent variable is PCT21Z

     Variable          Coefficient      Std Err        T-stat      Signf

  AZ3                    .159909       .147371E-01    10.8508       .000
  SIGZ3                  .382712E-01   .215782E-02    17.7361       .000


        R-Squared=  .98405     No. obs=    35
        R-Bar-Squared (adj)        =   .98357
        Durbin-Watson (   0 gaps) =  2.211901
        Sum of squared residuals =    .581719E-04
        Std. error of regression =    .132770E-02
        Sum of residuals =            .371768E-03
        Mean of dependent variable =  .825695E-02
```

```
       Log of likelihood function =  183.218

136> regress ef1

          Nonlinear Least Squares

  Convergence achieved after 3 iterations.

          Equation EF1

          Dependent variable is PCT19F
```

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.854165	.391174E-01	21.8359	.000
SIGF1	.645267E-01	.352323E-02	18.3146	.000

```
       R-Squared=  .92564     No. obs=    35
       R-Bar-Squared (adj)        =   .92339
       Durbin-Watson (   0 gaps) =   .756475
       Sum of squared residuals =    .251466E-01
       Std. error of regression =    .276047E-01
       Sum of residuals =           -.290369E-01
       Mean of dependent variable =  .161120
       Log of likelihood function =  77.0088

137> regress ef3

          Nonlinear Least Squares

  Convergence achieved after 4 iterations.

          Equation EF3

          Dependent variable is PCT21F
```

Variable	Coefficient	Std Err	T-stat	Signf
AF3	.916698	.263787E-01	34.7514	.000
MU_F3F	.355882E-02	.359166E-02	.990857	.330
MU_F3W	.352434E-03	.375058E-02	.939678E-01	.926
MU_F3S	.690898E-03	.385196E-02	.179363	.859
SIGF3	.393353E-01	.544090E-02	7.22956	.000

```
       R-Squared=  .94272     No. obs=    35
       R-Bar-Squared (adj)        =   .93508
       Durbin-Watson (   0 gaps) =   .584921
       Sum of squared residuals =    .416123E-01
```

```
        Std. error of regression =     .372435E-01
        Sum of residuals =             .269185E-01
        Mean of dependent variable =   .729594
        Log of likelihood function =   68.1945

138> dot sigb1 sigz1 sigz3 sigf1 sigf3
139> constant : = :
140> enddot


  *** WARNING 198: Command CONSTANT at line 139.
  *** Redefined SIGB1 as different type of item.


  *** WARNING 198: Command CONSTANT at line 139.
  *** Redefined SIGZ1 as different type of item.


  *** WARNING 198: Command CONSTANT at line 139.
  *** Redefined SIGZ3 as different type of item.


  *** WARNING 198: Command CONSTANT at line 139.
  *** Redefined SIGF1 as different type of item.


  *** WARNING 198: Command CONSTANT at line 139.
  *** Redefined SIGF3 as different type of item.


141> dot mu_b10 mu_b1f mu_b1s mu_b1t mu_b1tm mu_z10 mu_z1t mu_z1t94 mu_z30 mu_z3f
mu_z3s mu_z3t94 mu_z3t ...
141> mu_f10 mu_f1t mu_f1mc mu_f1tm mu_f30 mu_f3t
142> parameter : = :
143> enddot


  *** WARNING 198: Command PARAMETER at line 142.
  *** Redefined MU_B10 as different type of item.


  *** WARNING 198: Command PARAMETER at line 142.
  *** Redefined MU_B1F as different type of item.


  *** WARNING 198: Command PARAMETER at line 142.
  *** Redefined MU_B1S as different type of item.


  *** WARNING 198: Command PARAMETER at line 142.
  *** Redefined MU_B1T as different type of item.


  *** WARNING 198: Command PARAMETER at line 142.
  *** Redefined MU_B1TM as different type of item.


  *** WARNING 198: Command PARAMETER at line 142.
```

```
   *** Redefined MU_Z10 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z1T as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z1T94 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z30 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z3F as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z3S as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z3T94 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_Z3T as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F10 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F1T as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F1MC as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F1TM as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F30 as different type of item.

   *** WARNING 198: Command PARAMETER at line 142.
   *** Redefined MU_F3T as different type of item.

144> set iteration = 0
145> do
146> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
```

```
147> boc: = oc:
148> enddot
149> !
149> regress (maxit=500) ez1
150> mu19z = sigz1*ln(((az1*(1-mc95))/pct19z)-1) + d19z
151> napct = 1 / (1 + exp(-(d19z-mu19z)/sigz1))
152> zpct = 1 / (1 + exp(mu19z/sigz1))
153> gzpct = (napct-zpct)/napct
154> lzpct = 1 - gzpct
155> totbar = d19z + sigz1*log(1 - napct)/napct
156> lzbar = sigz1*log(1 - zpct)/zpct
157> ubar = (totbar - lzbar*lzpct)
158> revise oc19z = (d19z - ubar)*pct19z
159> !
159> regress (maxit=500) ez3
160> mu21z = sigz3*ln(((az3*(1-mc95))/pct21z)-1) + d21z
161> napct = 1 / (1 + exp(-(d21z-mu21z)/sigz3))
162> zpct = 1 / (1 + exp(mu21z/sigz3))
163> gzpct = (napct-zpct)/napct
164> lzpct = 1 - gzpct
165> totbar = d21z + sigz3*log(1 - napct)/napct
166> lzbar = sigz3*log(1 - zpct)/zpct
167> ubar = (totbar - lzbar*lzpct)
168> revise oc21z = (d21z - ubar)*pct21z
169> !
169> regress (maxit=500) eb1
170> mu19b = sigb1*ln(((ab1+ab1_m*mc95)/pct19b)-1) + d19b
171> napct = 1 / (1 + exp(-(d19b-mu19b)/sigb1))
172> zpct = 1 / (1 + exp(mu19b/sigb1))
173> gzpct = (napct-zpct)/napct
174> lzpct = 1 - gzpct
175> totbar = d19b + sigb1*log(1 - napct)/napct
176> lzbar = sigb1*log(1 - zpct)/zpct
177> ubar = (totbar - lzbar*lzpct)
178> revise oc19b = (d19b - ubar)*pct19b
179> !
179> regress (maxit=500) eb3
180> mu21b3 = sigb3*ln(((ab3+ab3_m*mc95-ab3_97*d_r97)/pct21b3)-1) + d21b3
181> napct = 1 / (1 + exp(-(d21b3-mu21b3)/sigb3))
182> zpct = 1 / (1 + exp(mu21b3/sigb3))
183> gzpct = (napct-zpct)/napct
184> lzpct = 1 - gzpct
185> totbar = d21b3 + sigb3*log(1 - napct)/napct
186> lzbar = sigb3*log(1 - zpct)/zpct
187> ubar = (totbar - lzbar*lzpct)
188> revise oc21b3 = (d21b3 - ubar)*pct21b3
189> !
189> regress (maxit=500) eb5
190> mu21b5 = sigb5*ln(((ab5-ab5_m*mc95+ab5_97*d_r97)/pct21b5)-1) + d21b5
191> napct = 1 / (1 + exp(-(d21b5-mu21b5)/sigb5))
192> zpct = 1 / (1 + exp(mu21b5/sigb5))
193> gzpct = (napct-zpct)/napct
194> lzpct = 1 - gzpct
195> totbar = d21b5 + sigb5*log(1 - napct)/napct
196> lzbar = sigb5*log(1 - zpct)/zpct
197> ubar = (totbar - lzbar*lzpct)
198> revise oc21b5 = (d21b5 - ubar)*pct21b5
199> !
```

```
199> regress (maxit=500) ef1
200> mu19f = sigf1*ln((af1/pct19f)-1) + d19f
201> napct = 1 / (1 + exp(-(d19f-mu19f)/sigf1))
202> zpct = 1 / (1 + exp(mu19f/sigf1))
203> gzpct = (napct-zpct)/napct
204> lzpct = 1 - gzpct
205> totbar = d19f + sigf1*log(1 - napct)/napct
206> lzbar = sigf1*log(1 - zpct)/zpct
207> ubar = (totbar - lzbar*lzpct)
208> revise oc19f = (d19f - ubar)*pct19f
209> !
209> regress (maxit=500) ef3
210> mu21f = sigf3*ln((af3/pct21f)-1) + d21f
211> napct = 1 / (1 + exp(-(d21f-mu21f)/sigf3))
212> zpct = 1 / (1 + exp(mu21f/sigf3))
213> gzpct = (napct-zpct)/napct
214> lzpct = 1 - gzpct
215> totbar = d21f + sigf3*log(1 - napct)/napct
216> lzbar = sigf3*log(1 - zpct)/zpct
217> ubar = (totbar - lzbar*lzpct)
218> revise oc21f = (d21f - ubar)*pct21f
219> !
219> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
220> dsq: = (oc: - boc:)**2
221> enddot
222> set iteration = iteration + 1
223> dsq = dsq19z + dsq19b + dsq19f + dsq21z + dsq21b3 + dsq21b5 + dsq19f + dsq21f
224> teststat = sum(dsq)
225> print teststat
226> if (iteration .gt. 10) set teststat = -3
228> until (teststat<0.00000001)
```

Nonlinear Least Squares

Convergence achieved after 20 iterations.

Equation EZ1

Dependent variable is PCT19Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.607117E-01	.226303E-01	2.68277	.012
MU_Z10	.577594E-02	.559135E-02	1.03301	.310
MU_Z1T94	.561310E-03	.493219E-03	1.13805	.264
MU_Z1T	.634258E-03	.940438E-04	6.74428	.000

R-Squared= .98420 No. obs= 35
R-Bar-Squared (adj) = .98267
Durbin-Watson (0 gaps) = 1.428343
Sum of squared residuals = .901829E-04
Std. error of regression = .170562E-02
Sum of residuals = .133124E-02

```
      Mean of dependent variable =  .963584E-02
      Log of likelihood function =  175.545


*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.


         Nonlinear Least Squares

Convergence achieved after 55 iterations.


         Equation EZ3

         Dependent variable is PCT21Z

    Variable          Coefficient      Std Err        T-stat      Signf

AZ3                    .342588E-01   .674654E-02    5.07798       .000
MU_Z30                -.342659E-01   .269884E-01   -1.26965       .214
MU_Z3F                -.199384E-01   .771362E-02   -2.58483       .015
MU_Z3S                -.161091E-01   .670453E-02   -2.40271       .023
MU_Z3T94              -.655722E-02   .179161E-02   -3.65997       .001
MU_Z3T                 .853635E-02   .193702E-02    4.40694       .000

      R-Squared=  .98652     No. obs=    35
      R-Bar-Squared (adj)        =   .98419
      Durbin-Watson (   0 gaps) =  2.372941
      Sum of squared residuals =    .491859E-04
      Std. error of regression =    .130233E-02
      Sum of residuals =            .128281E-02
      Mean of dependent variable =  .825695E-02
      Log of likelihood function =  186.154


*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.


         Nonlinear Least Squares

Convergence achieved after 8 iterations.


         Equation EB1

         Dependent variable is PCT19B
```

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.772504	.325193E-01	23.7553	.000
MU_B10	.429852E-01	.342233E-02	12.5602	.000
MU_B1F	.499930E-02	.304392E-02	1.64239	.111
MU_B1S	.579117E-02	.309285E-02	1.87244	.071
MU_B1T	-.104956E-02	.281128E-03	-3.73339	.001
MU_B1TM	-.481573E-02	.244281E-02	-1.97139	.058

R-Squared= .98471 No. obs= 35
R-Bar-Squared (adj) = .98207
Durbin-Watson (0 gaps) = 1.077756
Sum of squared residuals = .257682E-01
Std. error of regression = .298087E-01
Sum of residuals = .230395E-02
Mean of dependent variable = .524549
Log of likelihood function = 76.5815

*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 20 iterations.

Equation EB3

Dependent variable is PCT21B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.403943	.313997E-01	12.8646	.000
AB3_M	.300088	.498131E-01	6.02429	.000
AB3_97	.831437E-01	.180878E-01	4.59668	.000
MU_B30	.386313E-02	.401046E-02	.963263	.344
MU_B3F	.274065E-02	.999096E-03	2.74313	.011
MU_B3S	.166445E-02	.997440E-03	1.66873	.107
MU_B3T	-.697082E-03	.149751E-03	-4.65493	.000
SIGB3	.145267E-01	.396603E-02	3.66279	.001

R-Squared= .99610 No. obs= 35
R-Bar-Squared (adj) = .99509
Durbin-Watson (0 gaps) = .973692
Sum of squared residuals = .580672E-02
Std. error of regression = .146650E-01
Sum of residuals = .403820E-02
Mean of dependent variable = .383515
Log of likelihood function = 102.659

Nonlinear Least Squares

Convergence achieved after 15 iterations.

Equation EB5

Dependent variable is PCT21B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.669416	.168147	3.98114	.001
AB5_M	.327178	.168122	1.94607	.063
AB5_97	.118679	.204136E-01	5.81371	.000
MU_B50	.148652E-01	.501140E-02	2.96628	.007
MU_B596	-.131268E-01	.409081E-02	-3.20886	.004
MU_B5F	.188751E-02	.634454E-03	2.97501	.006
MU_B5S	.849085E-03	.499204E-03	1.70088	.101
MU_B5TM	-.129878E-02	.472183E-03	-2.75059	.011
MU_B5MC	.143323E-01	.246022E-02	5.82562	.000
SIGB5	.880827E-02	.367394E-02	2.39750	.024

R-Squared= .97390 No. obs= 35
R-Bar-Squared (adj) = .96451
Durbin-Watson (0 gaps) = 2.082573
Sum of squared residuals = .589174E-02
Std. error of regression = .153515E-01
Sum of residuals = .374601E-03
Mean of dependent variable = .347883
Log of likelihood function = 102.404

Nonlinear Least Squares

Convergence achieved after 16 iterations.

Equation EF1

Dependent variable is PCT19F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.351057	.453056E-01	7.74865	.000
MU_F10	.160055	.182772E-01	8.75709	.000
MU_F1T	-.450289E-02	.167760E-02	-2.68412	.012
MU_F1TM	-.245243E-02	.305925E-02	-.801643	.429
MU_F1MC	-.390060E-01	.162203E-01	-2.40477	.023

R-Squared= .95954 No. obs= 35
R-Bar-Squared (adj) = .95414

```
      Durbin-Watson (   0 gaps) =   .953252
      Sum of squared residuals =    .136844E-01
      Std. error of regression =    .213576E-01
      Sum of residuals =            .387726E-02
      Mean of dependent variable =  .161120
      Log of likelihood function =  87.6569


*** WARNING 191: Transformation at line 200.
*** Tried to take log of zero or negative number.
*** Result set to zero.


         Nonlinear Least Squares

Convergence achieved after 4 iterations.


         Equation EF3

         Dependent variable is PCT21F

    Variable          Coefficient      Std Err        T-stat      Signf

AF3                     .902551       .217731E-01    41.4525       .000
MU_F30                  .142884E-01   .455771E-02    3.13499       .004
MU_F3F                  .835821E-02   .508328E-02    1.64426       .111
MU_F3W                  .495764E-02   .518907E-02    .955401       .347
MU_F3S                  .527942E-02   .525251E-02    1.00512       .323
MU_F3T                 -.370525E-02   .551365E-03   -6.72014       .000


      R-Squared=  .94633     No. obs=    35
      R-Bar-Squared (adj)        =   .93707
      Durbin-Watson (   0 gaps) =   .690089
      Sum of squared residuals =    .389897E-01
      Std. error of regression =    .366670E-01
      Sum of residuals =           -.587959E-02
      Mean of dependent variable =  .729594
      Log of likelihood function =  69.3338


Constant TESTSTAT =   .161915E-02


         Nonlinear Least Squares

Convergence achieved after 1 iterations.


         Equation EZ1

         Dependent variable is PCT19Z
```

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.607614E-01	.225427E-01	2.69539	.012
MU_Z10	.578827E-02	.558438E-02	1.03651	.308
MU_Z1T94	.560257E-03	.493372E-03	1.13557	.265
MU_Z1T	.634202E-03	.940409E-04	6.74389	.000

R-Squared= .98420 No. obs= 35
R-Bar-Squared (adj) = .98267
Durbin-Watson (0 gaps) = 1.428583
Sum of squared residuals = .901829E-04
Std. error of regression = .170562E-02
Sum of residuals = .133133E-02
Mean of dependent variable = .963584E-02
Log of likelihood function = 175.545

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 9 iterations.

Equation EZ3

Dependent variable is PCT21Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.341077E-01	.666784E-02	5.11526	.000
MU_Z30	-.314387E-01	.271546E-01	-1.15777	.256
MU_Z3F	-.205092E-01	.778580E-02	-2.63418	.013
MU_Z3S	-.163176E-01	.678665E-02	-2.40437	.023
MU_Z3T94	-.681063E-02	.181024E-02	-3.76228	.001
MU_Z3T	.876113E-02	.194706E-02	4.49968	.000

R-Squared= .98632 No. obs= 35
R-Bar-Squared (adj) = .98396
Durbin-Watson (0 gaps) = 2.364040
Sum of squared residuals = .498931E-04
Std. error of regression = .131166E-02
Sum of residuals = .129062E-02
Mean of dependent variable = .825695E-02
Log of likelihood function = 185.904

*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.

Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB1

Dependent variable is PCT19B

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.772502	.325199E-01	23.7547	.000
MU_B10	.429850E-01	.342233E-02	12.5602	.000
MU_B1F	.499934E-02	.304390E-02	1.64241	.111
MU_B1S	.579120E-02	.309284E-02	1.87246	.071
MU_B1T	-.104956E-02	.281127E-03	-3.73341	.001
MU_B1TM	-.481588E-02	.244270E-02	-1.97154	.058

R-Squared= .98471 No. obs= 35
R-Bar-Squared (adj) = .98207
Durbin-Watson (0 gaps) = 1.077752
Sum of squared residuals = .257682E-01
Std. error of regression = .298087E-01
Sum of residuals = .230406E-02
Mean of dependent variable = .524549
Log of likelihood function = 76.5815

*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 10 iterations.

Equation EB3

Dependent variable is PCT21B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.395428	.359955E-01	10.9855	.000
AB3_M	.282463	.562610E-01	5.02058	.000
AB3_97	.839983E-01	.150789E-01	5.57059	.000
MU_B30	.882880E-02	.292741E-02	3.01591	.006
MU_B3F	.205862E-02	.936903E-03	2.19726	.037

MU_B3S	.138849E-02	.929777E-03	1.49335	.147
MU_B3T	-.475906E-03	.152241E-03	-3.12600	.004
SIGB3	.121565E-01	.365392E-02	3.32696	.003

R-Squared= .99630 No. obs= 35
R-Bar-Squared (adj) = .99534
Durbin-Watson (0 gaps) = 1.137028
Sum of squared residuals = .550805E-02
Std. error of regression = .142829E-01
Sum of residuals = .467476E-02
Mean of dependent variable = .383515
Log of likelihood function = 103.583

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB5

Dependent variable is PCT21B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.718586	.197699	3.63476	.001
AB5_M	.376631	.196157	1.92005	.066
AB5_97	.119746	.198396E-01	6.03571	.000
MU_B50	.162330E-01	.628380E-02	2.58331	.016
MU_B596	-.142298E-01	.387069E-02	-3.67631	.001
MU_B5F	.202893E-02	.698289E-03	2.90557	.008
MU_B5S	.908347E-03	.535297E-03	1.69690	.102
MU_B5TM	-.149874E-02	.502718E-03	-2.98127	.006
MU_B5MC	.147526E-01	.227318E-02	6.48987	.000
SIGB5	.102447E-01	.398827E-02	2.56870	.017

R-Squared= .97411 No. obs= 35
R-Bar-Squared (adj) = .96479
Durbin-Watson (0 gaps) = 2.050838
Sum of squared residuals = .584413E-02
Std. error of regression = .152894E-01
Sum of residuals = .303549E-03
Mean of dependent variable = .347883
Log of likelihood function = 102.546

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT19F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.351045	.453164E-01	7.74652	.000
MU_F10	.160053	.182773E-01	8.75694	.000
MU_F1T	-.450299E-02	.167754E-02	-2.68428	.012
MU_F1TM	-.245318E-02	.305900E-02	-.801955	.429
MU_F1MC	-.390032E-01	.162194E-01	-2.40473	.023

R-Squared= .95954 No. obs= 35
R-Bar-Squared (adj) = .95414
Durbin-Watson (0 gaps) = .953243
Sum of squared residuals = .136844E-01
Std. error of regression = .213576E-01
Sum of residuals = .387959E-02
Mean of dependent variable = .161120
Log of likelihood function = 87.6569

*** WARNING 191: Transformation at line 200.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF3

Dependent variable is PCT21F

Variable	Coefficient	Std Err	T-stat	Signf
AF3	.902540	.217566E-01	41.4835	.000
MU_F30	.142873E-01	.455908E-02	3.13381	.004
MU_F3F	.835975E-02	.508468E-02	1.64410	.111
MU_F3W	.495858E-02	.519057E-02	.955306	.347
MU_F3S	.528003E-02	.525409E-02	1.00494	.323
MU_F3T	-.370550E-02	.551431E-03	-6.71979	.000

R-Squared= .94633 No. obs= 35
R-Bar-Squared (adj) = .93707
Durbin-Watson (0 gaps) = .690122
Sum of squared residuals = .389897E-01
Std. error of regression = .366670E-01
Sum of residuals = -.588661E-02
Mean of dependent variable = .729594
Log of likelihood function = 69.3338

Constant TESTSTAT = .175273E-04

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EZ1

Dependent variable is PCT19Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.607181E-01	.226190E-01	2.68438	.012
MU_Z10	.577752E-02	.559045E-02	1.03346	.309
MU_Z1T94	.561175E-03	.493238E-03	1.13774	.264
MU_Z1T	.634250E-03	.940433E-04	6.74424	.000

R-Squared= .98420 No. obs= 35
R-Bar-Squared (adj) = .98267
Durbin-Watson (0 gaps) = 1.428374
Sum of squared residuals = .901829E-04
Std. error of regression = .170562E-02
Sum of residuals = .133114E-02
Mean of dependent variable = .963584E-02
Log of likelihood function = 175.545

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 5 iterations.

Equation EZ3

Dependent variable is PCT21Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.341002E-01	.667106E-02	5.11167	.000
MU_Z30	-.316705E-01	.271444E-01	-1.16674	.253
MU_Z3F	-.205155E-01	.778185E-02	-2.63632	.013
MU_Z3S	-.163290E-01	.678166E-02	-2.40782	.023
MU_Z3T94	-.680612E-02	.180927E-02	-3.76180	.001
MU_Z3T	.876012E-02	.194630E-02	4.50091	.000

```
      R-Squared=  .98633     No. obs=    35
      R-Bar-Squared (adj)        =   .98397
      Durbin-Watson (   0 gaps) =  2.363939
      Sum of squared residuals =    .498651E-04
      Std. error of regression =    .131129E-02
      Sum of residuals =            .128713E-02
      Mean of dependent variable =  .825695E-02
      Log of likelihood function =  185.914


*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.


         Nonlinear Least Squares

Convergence achieved after 1 iterations.


         Equation EB1

         Dependent variable is PCT19B

    Variable          Coefficient      Std Err        T-stat      Signf

AB1                     .772505       .325191E-01    23.7554       .000
MU_B10                  .429852E-01   .342232E-02    12.5602       .000
MU_B1F                  .499931E-02   .304392E-02    1.64240       .111
MU_B1S                  .579117E-02   .309285E-02    1.87244       .071
MU_B1T                 -.104956E-02   .281126E-03   -3.73340       .001
MU_B1TM                -.481566E-02   .244280E-02   -1.97137       .058


      R-Squared=  .98471     No. obs=    35
      R-Bar-Squared (adj)        =   .98207
      Durbin-Watson (   0 gaps) =  1.077758
      Sum of squared residuals =    .257682E-01
      Std. error of regression =    .298087E-01
      Sum of residuals =            .230404E-02
      Mean of dependent variable =  .524549
      Log of likelihood function =  76.5815


*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 2 times.


         Nonlinear Least Squares

Convergence achieved after 25 iterations.
```

Equation EB3

Dependent variable is PCT21B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.393692	.333215E-01	11.8149	.000
AB3_M	.290994	.523042E-01	5.56349	.000
AB3_97	.807843E-01	.152933E-01	5.28232	.000
MU_B30	.855118E-02	.310400E-02	2.75489	.010
MU_B3F	.200459E-02	.929134E-03	2.15748	.040
MU_B3S	.144852E-02	.924768E-03	1.56636	.129
MU_B3T	-.509260E-03	.142594E-03	-3.57139	.001
SIGB3	.128635E-01	.360722E-02	3.56605	.001

R-Squared= .99647 No. obs= 35
R-Bar-Squared (adj) = .99555
Durbin-Watson (0 gaps) = 1.175150
Sum of squared residuals = .526007E-02
Std. error of regression = .139577E-01
Sum of residuals = .443156E-02
Mean of dependent variable = .383515
Log of likelihood function = 104.389

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EB5

Dependent variable is PCT21B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.704335	.190518	3.69694	.001
AB5_M	.361168	.189998	1.90090	.069
AB5_97	.118671	.203295E-01	5.83738	.000
MU_B50	.158184E-01	.594728E-02	2.65977	.013
MU_B596	-.138632E-01	.396783E-02	-3.49390	.002
MU_B5F	.197991E-02	.678413E-03	2.91844	.007
MU_B5S	.888923E-03	.524396E-03	1.69513	.102
MU_B5TM	-.143046E-02	.499912E-03	-2.86142	.008
MU_B5MC	.146926E-01	.226922E-02	6.47474	.000
SIGB5	.980810E-02	.393029E-02	2.49552	.020

R-Squared= .97398 No. obs= 35
R-Bar-Squared (adj) = .96461
Durbin-Watson (0 gaps) = 2.060505
Sum of squared residuals = .587397E-02

```
Std. error of regression =     .153284E-01
Sum of residuals =             .349281E-03
Mean of dependent variable =   .347883
Log of likelihood function =   102.457


        Nonlinear Least Squares

Convergence achieved after 1 iterations.


        Equation EF1

        Dependent variable is PCT19F
```

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.351066	.453055E-01	7.74886	.000
MU_F10	.160057	.182766E-01	8.75751	.000
MU_F1T	-.450286E-02	.167756E-02	-2.68418	.012
MU_F1TM	-.245193E-02	.305908E-02	-.801527	.429
MU_F1MC	-.390069E-01	.162200E-01	-2.40486	.023

```
R-Squared=  .95954     No. obs=    35
R-Bar-Squared (adj)        =   .95414
Durbin-Watson (   0 gaps) =   .953260
Sum of squared residuals =    .136844E-01
Std. error of regression =    .213576E-01
Sum of residuals =            .387812E-02
Mean of dependent variable =  .161120
Log of likelihood function =  87.6569


*** WARNING 191: Transformation at line 200.
*** Tried to take log of zero or negative number.
*** Result set to zero.


        Nonlinear Least Squares

Convergence achieved after 1 iterations.


        Equation EF3

        Dependent variable is PCT21F
```

Variable	Coefficient	Std Err	T-stat	Signf
AF3	.902539	.217540E-01	41.4883	.000
MU_F30	.142871E-01	.455930E-02	3.13362	.004
MU_F3F	.835998E-02	.508490E-02	1.64408	.111
MU_F3W	.495873E-02	.519081E-02	.955291	.347

MU_F3S	.528012E-02	.525434E-02	1.00491	.323
MU_F3T	-.370554E-02	.551442E-03	-6.71973	.000

R-Squared= .94633 No. obs= 35
R-Bar-Squared (adj) = .93707
Durbin-Watson (0 gaps) = .690128
Sum of squared residuals = .389897E-01
Std. error of regression = .366670E-01
Sum of residuals = -.588763E-02
Mean of dependent variable = .729594
Log of likelihood function = 69.3338

Constant TESTSTAT = .171402E-05

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EZ1

Dependent variable is PCT19Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.607559E-01	.225524E-01	2.69398	.012
MU_Z10	.578690E-02	.558515E-02	1.03612	.308
MU_Z1T94	.560374E-03	.493354E-03	1.13585	.265
MU_Z1T	.634208E-03	.940412E-04	6.74394	.000

R-Squared= .98420 No. obs= 35
R-Bar-Squared (adj) = .98267
Durbin-Watson (0 gaps) = 1.428556
Sum of squared residuals = .901829E-04
Std. error of regression = .170562E-02
Sum of residuals = .133122E-02
Mean of dependent variable = .963584E-02
Log of likelihood function = 175.545

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 3 iterations.

Equation EZ3

Dependent variable is PCT21Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.341065E-01	.666484E-02	5.11737	.000
MU_Z3O	-.315903E-01	.271430E-01	-1.16385	.254
MU_Z3F	-.205101E-01	.778329E-02	-2.63515	.013
MU_Z3S	-.163217E-01	.678437E-02	-2.40578	.023
MU_Z3T94	-.680711E-02	.180989E-02	-3.76105	.001
MU_Z3T	.875912E-02	.194644E-02	4.50007	.000

R-Squared= .98633 No. obs= 35
R-Bar-Squared (adj) = .98397
Durbin-Watson (0 gaps) = 2.363895
Sum of squared residuals = .498716E-04
Std. error of regression = .131138E-02
Sum of residuals = .128794E-02
Mean of dependent variable = .825695E-02
Log of likelihood function = 185.912

*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
Occurs 19 times.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB1

Dependent variable is PCT19B

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.772501	.325203E-01	23.7544	.000
MU_B1O	.429850E-01	.342233E-02	12.5602	.000
MU_B1F	.499935E-02	.304390E-02	1.64242	.111
MU_B1S	.579122E-02	.309283E-02	1.87246	.071
MU_B1T	-.104956E-02	.281127E-03	-3.73341	.001
MU_B1TM	-.481598E-02	.244265E-02	-1.97162	.058

R-Squared= .98471 No. obs= 35
R-Bar-Squared (adj) = .98207
Durbin-Watson (0 gaps) = 1.077749
Sum of squared residuals = .257682E-01
Std. error of regression = .298087E-01
Sum of residuals = .230408E-02

Mean of dependent variable = .524549
Log of likelihood function = 76.5815

*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 20 iterations.

Equation EB3

Dependent variable is PCT21B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.394159	.341497E-01	11.5421	.000
AB3_M	.288241	.536280E-01	5.37482	.000
AB3_97	.817398E-01	.152683E-01	5.35356	.000
MU_B30	.862005E-02	.305064E-02	2.82566	.009
MU_B3F	.202024E-02	.934070E-03	2.16284	.040
MU_B3S	.142743E-02	.928917E-03	1.53666	.136
MU_B3T	-.498879E-03	.146056E-03	-3.41567	.002
SIGB3	.126389E-01	.363205E-02	3.47984	.002

R-Squared= .99640 No. obs= 35
R-Bar-Squared (adj) = .99547
Durbin-Watson (0 gaps) = 1.159708
Sum of squared residuals = .535905E-02
Std. error of regression = .140884E-01
Sum of residuals = .451329E-02
Mean of dependent variable = .383515
Log of likelihood function = 104.063

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB5

Dependent variable is PCT21B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.708821	.192475	3.68267	.001
AB5_M	.365982	.191662	1.90952	.068

AB5_97	.118977	.201840E-01	5.89463	.000
MU_B50	.159471E-01	.604380E-02	2.63859	.014
MU_B596	-.139749E-01	.393596E-02	-3.55058	.002
MU_B5F	.199509E-02	.684462E-03	2.91482	.007
MU_B5S	.894994E-03	.527737E-03	1.69591	.102
MU_B5TM	-.145138E-02	.500339E-03	-2.90080	.008
MU_B5MC	.147119E-01	.226487E-02	6.49569	.000
SIGB5	.994484E-02	.394435E-02	2.52129	.018

R-Squared= .97402 No. obs= 35
R-Bar-Squared (adj) = .96467
Durbin-Watson (0 gaps) = 2.057429
Sum of squared residuals = .586496E-02
Std. error of regression = .153166E-01
Sum of residuals = .335481E-03
Mean of dependent variable = .347883
Log of likelihood function = 102.484

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT19F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.351032	.453236E-01	7.74502	.000
MU_F10	.160051	.182778E-01	8.75657	.000
MU_F1T	-.450307E-02	.167753E-02	-2.68433	.012
MU_F1TM	-.245395E-02	.305894E-02	-.802221	.429
MU_F1MC	-.390009E-01	.162190E-01	-2.40465	.023

R-Squared= .95954 No. obs= 35
R-Bar-Squared (adj) = .95414
Durbin-Watson (0 gaps) = .953232
Sum of squared residuals = .136844E-01
Std. error of regression = .213576E-01
Sum of residuals = .388070E-02
Mean of dependent variable = .161120
Log of likelihood function = 87.6569

*** WARNING 191: Transformation at line 200.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF3

Dependent variable is PCT21F

Variable	Coefficient	Std Err	T-stat	Signf
AF3	.902538	.217536E-01	41.4891	.000
MU_F30	.142871E-01	.455933E-02	3.13359	.004
MU_F3F	.836002E-02	.508494E-02	1.64408	.111
MU_F3W	.495875E-02	.519084E-02	.955288	.347
MU_F3S	.528014E-02	.525438E-02	1.00490	.323
MU_F3T	-.370555E-02	.551443E-03	-6.71973	.000

R-Squared= .94633 No. obs= 35
R-Bar-Squared (adj) = .93707
Durbin-Watson (0 gaps) = .690128
Sum of squared residuals = .389897E-01
Std. error of regression = .366670E-01
Sum of residuals = -.588779E-02
Mean of dependent variable = .729594
Log of likelihood function = 69.3338

Constant TESTSTAT = .165985E-06

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EZ1

Dependent variable is PCT19Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.607229E-01	.226105E-01	2.68561	.012
MU_Z10	.577872E-02	.558977E-02	1.03380	.309
MU_Z1T94	.561073E-03	.493253E-03	1.13750	.264
MU_Z1T	.634245E-03	.940430E-04	6.74420	.000

R-Squared= .98420 No. obs= 35
R-Bar-Squared (adj) = .98267
Durbin-Watson (0 gaps) = 1.428397
Sum of squared residuals = .901829E-04
Std. error of regression = .170562E-02
Sum of residuals = .133109E-02
Mean of dependent variable = .963584E-02
Log of likelihood function = 175.545

```
*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.

         Nonlinear Least Squares

Convergence achieved after 2 iterations.

         Equation EZ3

         Dependent variable is PCT21Z

    Variable          Coefficient      Std Err        T-stat      Signf

AZ3                    .341055E-01   .666443E-02    5.11754      .000
MU_Z30                -.316122E-01   .271412E-01   -1.16473      .254
MU_Z3F                -.205110E-01   .778311E-02   -2.63532      .013
MU_Z3S                -.163228E-01   .678392E-02   -2.40611      .023
MU_Z3T94              -.680667E-02   .180985E-02   -3.76090      .001
MU_Z3T                 .875914E-02   .194634E-02    4.50032      .000

      R-Squared=  .98633     No. obs=    35
      R-Bar-Squared (adj)        =   .98397
      Durbin-Watson (   0 gaps) =  2.363885
      Sum of squared residuals =    .498695E-04
      Std. error of regression =    .131135E-02
      Sum of residuals =            .128769E-02
      Mean of dependent variable =  .825695E-02
      Log of likelihood function =  185.913

*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 19 times.

         Nonlinear Least Squares

Convergence achieved after 1 iterations.

         Equation EB1

         Dependent variable is PCT19B

    Variable          Coefficient      Std Err        T-stat      Signf
```

AB1	.772507	.325185E-01	23.7559	.000
MU_B1O	.429853E-01	.342232E-02	12.5603	.000
MU_B1F	.499930E-02	.304393E-02	1.64239	.111
MU_B1S	.579114E-02	.309285E-02	1.87243	.071
MU_B1T	-.104956E-02	.281126E-03	-3.73340	.001
MU_B1TM	-.481553E-02	.244286E-02	-1.97126	.058

R-Squared= .98471 No. obs= 35
R-Bar-Squared (adj) = .98207
Durbin-Watson (0 gaps) = 1.077761
Sum of squared residuals = .257682E-01
Std. error of regression = .298087E-01
Sum of residuals = .230402E-02
Mean of dependent variable = .524549
Log of likelihood function = 76.5815

*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 6 iterations.

Equation EB3

Dependent variable is PCT21B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.393994	.338761E-01	11.6304	.000
AB3_M	.288872	.532340E-01	5.42646	.000
AB3_97	.813834E-01	.153090E-01	5.31606	.000
MU_B3O	.858276E-02	.307511E-02	2.79104	.010
MU_B3F	.201508E-02	.933234E-03	2.15925	.040
MU_B3S	.143424E-02	.928494E-03	1.54470	.134
MU_B3T	-.501532E-03	.145072E-03	-3.45712	.002
SIGB3	.126890E-01	.363081E-02	3.49480	.002

R-Squared= .99642 No. obs= 35
R-Bar-Squared (adj) = .99549
Durbin-Watson (0 gaps) = 1.165544
Sum of squared residuals = .532896E-02
Std. error of regression = .140488E-01
Sum of residuals = .449329E-02
Mean of dependent variable = .383515
Log of likelihood function = 104.161

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB5

Dependent variable is PCT21B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.708051	.192608	3.67612	.001
AB5_M	.365080	.191880	1.90265	.069
AB5_97	.118874	.202331E-01	5.87521	.000
MU_B50	.159251E-01	.604286E-02	2.63536	.014
MU_B596	-.139505E-01	.394760E-02	-3.53391	.002
MU_B5F	.199167E-02	.683870E-03	2.91235	.007
MU_B5S	.893687E-03	.527406E-03	1.69449	.103
MU_B5TM	-.144694E-02	.501644E-03	-2.88439	.008
MU_B5MC	.147094E-01	.226584E-02	6.49182	.000
SIGB5	.991897E-02	.395178E-02	2.51000	.019

R-Squared= .97401 No. obs= 35
R-Bar-Squared (adj) = .96465
Durbin-Watson (0 gaps) = 2.058066
Sum of squared residuals = .586775E-02
Std. error of regression = .153203E-01
Sum of residuals = .339933E-03
Mean of dependent variable = .347883
Log of likelihood function = 102.476

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT19F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.351086	.452944E-01	7.75121	.000
MU_F10	.160061	.182758E-01	8.75809	.000
MU_F1T	-.450274E-02	.167757E-02	-2.68409	.012
MU_F1TM	-.245070E-02	.305916E-02	-.801103	.429
MU_F1MC	-.390106E-01	.162206E-01	-2.40500	.023

R-Squared= .95954 No. obs= 35
R-Bar-Squared (adj) = .95414
Durbin-Watson (0 gaps) = .953276
Sum of squared residuals = .136844E-01

```
      Std. error of regression =     .213576E-01
      Sum of residuals =             .387680E-02
      Mean of dependent variable =   .161120
      Log of likelihood function =   87.6569


*** WARNING 191: Transformation at line 200.
*** Tried to take log of zero or negative number.
*** Result set to zero.


          Nonlinear Least Squares


Convergence achieved after 1 iterations.


          Equation EF3

          Dependent variable is PCT21F

    Variable          Coefficient      Std Err        T-stat      Signf

AF3                     .902538       .217536E-01    41.4892       .000
MU_F30                  .142871E-01   .455934E-02    3.13359       .004
MU_F3F                  .836003E-02   .508494E-02    1.64408       .111
MU_F3W                  .495875E-02   .519085E-02    .955288       .347
MU_F3S                  .528014E-02   .525439E-02    1.00490       .323
MU_F3T                 -.370555E-02   .551444E-03   -6.71972       .000


      R-Squared=  .94633     No. obs=    35
      R-Bar-Squared (adj)        =   .93707
      Durbin-Watson (   0 gaps) =   .690128
      Sum of squared residuals =    .389897E-01
      Std. error of regression =    .366670E-01
      Sum of residuals =           -.588781E-02
      Mean of dependent variable =  .729594
      Log of likelihood function =  69.3338


Constant TESTSTAT =   .711493E-08

229> print teststat iteration


Constant TESTSTAT =   .711493E-08

Constant ITERATION =   5.00000

230> !
230> a19z = az1*(1-mc95)
231> a21z = az3*(1-mc95)
232> a19b = ab1 + ab1_m*mc95
233> a21b3 = ab3 + ab3_m*mc95 - ab3_97*d_r97
234> a21b5 = ab5 - ab5_m*mc95 + ab5_97*d_r97
```

```
235> a19f = af1
236> a21f = af3
237> set sig19z = sigz1
238> set sig19b = sigb1
239> set sig21z = sigz3
240> set sig21b3 = sigb3
241> set sig21b5 = sigb5
242> set sig19f = sigf1
243> set sig21f = sigf3
244> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
245> mu: = sig:*ln((a:/pct:)-1) + d:
246> enddot


  *** WARNING 190: Transformation at line 245.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 191: Transformation at line 245.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 2 times.


  *** WARNING 191: Transformation at line 245.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


  *** WARNING 190: Transformation at line 245.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


247> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
248> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
249> zpct = 1 / (1 + exp(mu:/sig:))
250> gzpct = (napct-zpct)/napct
251> lzpct = 1 - gzpct
252> totbar = d: + sig:*log(1 - napct)/napct
253> lzbar = sig:*log(1 - zpct)/zpct
254> ubar = (totbar - lzbar*lzpct)
255> revise oc: = (d: - ubar)*pct:
256> enddot
257> !
257> fpct19b = (ab1+ab1_m*mc95) / ...
257>
(1+exp(-(d19b-(mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+mu_b1tm*t_mc9
5+mu_b1mc*mc95)) / ...
257> sigb1))
258> fpct19z = (az1*(1-mc95)) / ...
258>
(1+exp(-(d19z-(mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t94*tz+mu_z1t*t))
/ ...
258> sigz1))
```

```
259> fpct21b3 = (ab3+ab3_m*mc95-ab3_97*d_r97) / ...
259>
(1+exp(-(d21b3-(mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+mu_b3tm*t_mc
95+mu_b3mc*mc95+oc21z+(1/(ab3+ab3_m*mc95))*oc21b5)) / ...
259> sigb3))
260> fpct21b5 = (ab5-ab5_m*mc95+ab5_97*d_r97) / ...
260>
(1+exp(-(d21b5-(mu_b50+mu_b596*d96q4+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*
t+mu_b5tm*t_mc95+mu_b5mc*mc95+oc21z+(1/ab5)*oc21b3)) / ...
260> sigb5))
261> fpct21z = (az3*(1-mc95)) / ...
261>
(1+exp(-(d21z-(mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t94*tz+mu_z3t*t+o
c21b3+oc21b5)) / ...
261> sigz3))
262> fpct19f = af1 / ...
262>
(1+exp(-(d19f-(mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc9
5+mu_f1mc*mc95)) / ...
262> sigf1))
263> fpct21f = af3 / ...
263>
(1+exp(-(d21f-(mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc9
5+mu_f3mc*mc95)) / ...
263> sigf3))
264> !
264> fpct19n_l = 1 - fpct19z - fpct19b
265> fpct19n_nl = 1 - fpct19f
266> fpct21n_l = 1 - fpct21z - fpct21b3 - fpct21b5
267> fpct21n_nl = 1 - fpct21f
268> dot '19n_l' '19n_nl' '19z' '19b' '19f' '21n_l' '21n_nl' '21z' '21b3' '21b5'
'21f'
269> ape: = sum(abs(fpct:/pct:-1)*pct:)
270> denom: = sum(pct:)
271> set mape: = ape: / denom:
272> enddot


  *** WARNING 241: Transformation at line 269.
  *** Divide by zero.  Result set to zero.
      Occurs 19 times.


  *** WARNING 241: Transformation at line 269.
  *** Divide by zero.  Result set to zero.
      Occurs 19 times.


273> print pct19n_l fpct19n_l
```

	PCT19N_L	FPCT19N_ L
1993Q1	.689282	.731972
1993Q2	.636066	.703622
1993Q3	.726522	.733339
1993Q4	.703695	.700373

1994Q1	.756300	.726551
1994Q2	.734875	.696762
1994Q3	.743713	.727264
1994Q4	.727331	.691416
1995Q1	.728191	.716365
1995Q2	.701159	.668205
1995Q3	.713459	.693338
1995Q4	.686498	.654795
1996Q1	.659599	.680565
1996Q2	.636718	.645992
1996Q3	.641348	.676873
1996Q4	.462020	.544726
1997Q1	.403252	.370683
1997Q2	.359522	.335602
1997Q3	.355372	.336234
1997Q4	.316035	.306146
1998Q1	.303952	.304852
1998Q2	.294016	.283851
1998Q3	.292301	.283974
1998Q4	.271089	.267566
1999Q1	.261782	.266834
1999Q2	.260529	.268141
1999Q3	.251709	.280391
1999Q4	.252614	.264934
2000Q1	.273016	.264319
2000Q2	.270276	.254068
2000Q3	.259040	.254339
2000Q4	.246191	.246268
2001Q1	.247746	.245909
2001Q2	.226379	.240485
2001Q3	.211933	.240412

```
274> print mape19n_l


  Constant MAPE19N_L =    .442782E-01

275> page
276> print pct19n_nl fpct19n_nl
```

	PCT19N_NL	FPCT19N_NL
1993Q1	.968610	.960475
1993Q2	.957851	.957921
1993Q3	.961310	.955365
1993Q4	.958270	.952645
1994Q1	.953321	.949820
1994Q2	.937053	.946791
1994Q3	.940332	.943655
1994Q4	.943947	.940439
1995Q1	.924032	.937031
1995Q2	.915935	.930852
1995Q3	.915697	.926100
1995Q4	.930036	.922086
1996Q1	.929012	.917905
1996Q2	.921673	.913572

1996Q3	.914694	.909155
1996Q4	.856031	.873366
1997Q1	.852401	.848463
1997Q2	.832208	.839348
1997Q3	.830020	.830077
1997Q4	.815000	.820722
1998Q1	.809279	.811444
1998Q2	.804918	.802123
1998Q3	.777652	.792967
1998Q4	.781396	.784043
1999Q1	.771825	.775333
1999Q2	.758174	.747636
1999Q3	.767741	.728192
1999Q4	.755085	.722008
2000Q1	.733996	.716276
2000Q2	.736428	.710848
2000Q3	.689783	.705877
2000Q4	.710148	.701063
2001Q1	.709552	.696637
2001Q2	.687809	.697500
2001Q3	.609582	.696945

```
277> print mape19n_nl


  Constant MAPE19N_NL =    .147508E-01

278> page
279> print pct19z fpct19z
```

	PCT19Z	FPCT19Z
1993Q1	.391082E-01	.416754E-01
1993Q2	.413547E-01	.383191E-01
1993Q3	.385786E-01	.347126E-01
1993Q4	.286783E-01	.310303E-01
1994Q1	.246305E-01	.272764E-01
1994Q2	.197930E-01	.237097E-01
1994Q3	.203497E-01	.202718E-01
1994Q4	.219751E-01	.184182E-01
1995Q1	.203860E-01	.167150E-01
1995Q2	.163614E-01	.169217E-01
1995Q3	.159471E-01	.159016E-01
1995Q4	.137334E-01	.143613E-01
1996Q1	.128286E-01	.129368E-01
1996Q2	.989466E-02	.116173E-01
1996Q3	.106596E-01	.103649E-01
1996Q4	.297558E-02	.169121E-02
1997Q1	0.00000	0.00000
1997Q2	0.00000	0.00000
1997Q3	0.00000	0.00000
1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000

1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
280> print mape19z


  Constant MAPE19Z =    .899397E-01

281> page
282> print pct19b fpct19b
```

	PCT19B	FPCT19B
1993Q1	.271610	.226353
1993Q2	.322579	.258058
1993Q3	.234899	.231948
1993Q4	.267627	.268597
1994Q1	.219069	.246173
1994Q2	.245332	.279528
1994Q3	.235937	.252464
1994Q4	.250694	.290165
1995Q1	.251423	.266920
1995Q2	.282480	.314873
1995Q3	.270594	.290761
1995Q4	.299769	.330843
1996Q1	.327573	.306498
1996Q2	.353388	.342391
1996Q3	.347992	.312762
1996Q4	.535004	.453582
1997Q1	.596748	.629317
1997Q2	.640478	.664398
1997Q3	.644628	.663766
1997Q4	.683965	.693854
1998Q1	.696048	.695148
1998Q2	.705984	.716149
1998Q3	.707699	.716026
1998Q4	.728911	.732434
1999Q1	.738218	.733166
1999Q2	.739471	.731859
1999Q3	.748291	.719609
1999Q4	.747386	.735066
2000Q1	.726984	.735681
2000Q2	.729724	.745932
2000Q3	.740960	.745661
2000Q4	.753809	.753732
2001Q1	.752254	.754091
2001Q2	.773621	.759515
2001Q3	.788067	.759588

```
283> print mape19b


  Constant MAPE19B =    .389481E-01

284> page
285> print pct19f fpct19f
```

	PCT19F	FPCT19F
1993Q1	.313899E-01	.395252E-01
1993Q2	.421487E-01	.420795E-01
1993Q3	.386903E-01	.446355E-01
1993Q4	.417296E-01	.473547E-01
1994Q1	.466788E-01	.501802E-01
1994Q2	.629468E-01	.532089E-01
1994Q3	.596683E-01	.563449E-01
1994Q4	.560529E-01	.595612E-01
1995Q1	.759682E-01	.629690E-01
1995Q2	.840646E-01	.691479E-01
1995Q3	.843027E-01	.739003E-01
1995Q4	.699639E-01	.779142E-01
1996Q1	.709883E-01	.820952E-01
1996Q2	.783270E-01	.864282E-01
1996Q3	.853058E-01	.908447E-01
1996Q4	.143969	.126634
1997Q1	.147599	.151537
1997Q2	.167792	.160652
1997Q3	.169980	.169923
1997Q4	.185000	.179278
1998Q1	.190721	.188556
1998Q2	.195082	.197877
1998Q3	.222348	.207033
1998Q4	.218604	.215957
1999Q1	.228175	.224667
1999Q2	.241826	.252364
1999Q3	.232259	.271808
1999Q4	.244915	.277992
2000Q1	.266004	.283724
2000Q2	.263572	.289152
2000Q3	.310217	.294123
2000Q4	.289852	.298937
2001Q1	.290448	.303363
2001Q2	.312191	.302500
2001Q3	.390418	.303055

```
286> print mape19f


  Constant MAPE19F =    .768007E-01

287> page
288> !
288> print pct21n_1 fpct21n_1
```

FPCT21N_

	PCT21N_L	L
1993Q1	.466943	.478929
1993Q2	.451794	.436913
1993Q3	.433569	.464073
1993Q4	.399759	.450038
1994Q1	.514019	.461881
1994Q2	.432521	.436793
1994Q3	.460952	.448585
1994Q4	.446164	.432684
1995Q1	.468919	.470973
1995Q2	.414277	.398902
1995Q3	.420709	.404656
1995Q4	.411513	.385647
1996Q1	.414985	.430114
1996Q2	.367046	.401895
1996Q3	.404886	.411920
1996Q4	.270994	.253913
1997Q1	.220971	.198867
1997Q2	.182259	.189928
1997Q3	.180211	.178320
1997Q4	.158670	.166502
1998Q1	.157474	.174932
1998Q2	.138672	.151001
1998Q3	.140645	.140545
1998Q4	.126255	.120483
1999Q1	.133462	.127475
1999Q2	.113494	.121355
1999Q3	.108476	.129639
1999Q4	.992343E-01	.104090
2000Q1	.101875	.116134
2000Q2	.948668E-01	.852417E-01
2000Q3	.926316E-01	.934951E-01
2000Q4	.760609E-01	.771160E-01
2001Q1	.776446E-01	.111527
2001Q2	.653019E-01	.378961E-01
2001Q3	.648175E-01	.217539E-01

```
289> print mape21n_l


  Constant MAPE21N_L =    .623925E-01

290> page
291> print pct21n_nl fpct21n_nl
```

	PCT21N_NL	FPCT21N_NL
1993Q1	.696206	.573938
1993Q2	.567151	.532935
1993Q3	.510559	.514214
1993Q4	.408587	.464054
1994Q1	.411109	.490685
1994Q2	.406904	.451415
1994Q3	.394243	.433541
1994Q4	.391729	.387641

1995Q1	.370232	.411957
1995Q2	.349314	.368992
1995Q3	.363742	.351022
1995Q4	.360193	.311924
1996Q1	.328248	.332256
1996Q2	.327957	.302612
1996Q3	.327483	.289801
1996Q4	.260369	.240428
1997Q1	.229477	.221123
1997Q2	.221109	.203569
1997Q3	.202795	.196088
1997Q4	.192601	.177909
1998Q1	.186407	.187306
1998Q2	.179015	.173773
1998Q3	.181060	.168094
1998Q4	.165068	.154757
1999Q1	.163966	.161639
1999Q2	.156228	.151145
1999Q3	.144779	.146671
1999Q4	.127775	.137220
2000Q1	.121664	.142217
2000Q2	.129680	.135306
2000Q3	.115170	.132551
2000Q4	.115009	.125699
2001Q1	.107064	.129259
2001Q2	.111860	.128041
2001Q3	.139460	.128545

```
292> print mape21n_nl


  Constant MAPE21N_NL =    .836252E-01

293> page
294> print pct21z fpct21z
```

	PCT21Z	FPCT21Z
1993Q1	.265235E-01	.269745E-01
1993Q2	.244524E-01	.230638E-01
1993Q3	.264721E-01	.256121E-01
1993Q4	.218049E-01	.221229E-01
1994Q1	.226855E-01	.258662E-01
1994Q2	.199946E-01	.214309E-01
1994Q3	.260525E-01	.243549E-01
1994Q4	.182595E-01	.191720E-01
1995Q1	.261509E-01	.217748E-01
1995Q2	.147381E-01	.152673E-01
1995Q3	.148235E-01	.170038E-01
1995Q4	.131930E-01	.115717E-01
1996Q1	.125732E-01	.140323E-01
1996Q2	.842894E-02	.821957E-02
1996Q3	.982516E-02	.964137E-02
1996Q4	.301530E-02	.160650E-02
1997Q1	0.00000	0.00000
1997Q2	0.00000	0.00000
1997Q3	0.00000	0.00000

1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000
1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
295> print mape21z

  Constant MAPE21Z =    .768614E-01

296> page
297> print pct21b3 fpct21b3
```

	PCT21B3	FPCT21B3
1993Q1	.126811	.122566
1993Q2	.131014	.135864
1993Q3	.126973	.123113
1993Q4	.150438	.131604
1994Q1	.136073	.149919
1994Q2	.151810	.148590
1994Q3	.154616	.152422
1994Q4	.150733	.158781
1995Q1	.147080	.154959
1995Q2	.166800	.166909
1995Q3	.167136	.164501
1995Q4	.167580	.175344
1996Q1	.168954	.165043
1996Q2	.178549	.168347
1996Q3	.173194	.173458
1996Q4	.363276	.381766
1997Q1	.595815	.612254
1997Q2	.628823	.622247
1997Q3	.610467	.614113
1997Q4	.627035	.621802
1998Q1	.619544	.612494
1998Q2	.635270	.623378
1998Q3	.617549	.615640
1998Q4	.616813	.620373
1999Q1	.607674	.612118
1999Q2	.585791	.569734
1999Q3	.539271	.518779
1999Q4	.534069	.523712
2000Q1	.512974	.505866
2000Q2	.513583	.516836

```
  2000Q3                .506771        .504655
  2000Q4                .522711        .515464
  2001Q1                .489382        .474363
  2001Q2                .502488        .528708
  2001Q3                .495960        .536779

298> print mape21b3


  Constant MAPE21B3 =    .238240E-01

299> page
300> print pct21b5 fpct21b5


                          PCT21B5        FPCT21B5

  1993Q1                .379723        .371531
  1993Q2                .392740        .404159
  1993Q3                .412986        .387201
  1993Q4                .427998        .396236
  1994Q1                .327223        .362333
  1994Q2                .395675        .393186
  1994Q3                .358380        .374638
  1994Q4                .384843        .389363
  1995Q1                .357850        .352294
  1995Q2                .404185        .418921
  1995Q3                .397331        .413840
  1995Q4                .407714        .427438
  1996Q1                .403487        .390811
  1996Q2                .445976        .421539
  1996Q3                .412095        .404980
  1996Q4                .362715        .362715
  1997Q1                .183214        .188879
  1997Q2                .188918        .187825
  1997Q3                .209322        .207567
  1997Q4                .214295        .211696
  1998Q1                .222981        .212574
  1998Q2                .226058        .225621
  1998Q3                .241806        .243815
  1998Q4                .256931        .259144
  1999Q1                .258864        .260407
  1999Q2                .300714        .308911
  1999Q3                .352254        .351582
  1999Q4                .366696        .372198
  2000Q1                .385151        .378001
  2000Q2                .391551        .397923
  2000Q3                .400597        .401850
  2000Q4                .401228        .407420
  2001Q1                .432973        .414110
  2001Q2                .432210        .433396
  2001Q3                .439223        .441467

301> print mape21b5


  Constant MAPE21B5 =    .264163E-01
```

```
302> page
303> print pct21f fpct21f


                          PCT21F          FPCT21F

  1993Q1                .303794         .426062
  1993Q2                .432849         .467065
  1993Q3                .489441         .485786
  1993Q4                .591413         .535946
  1994Q1                .588891         .509315
  1994Q2                .593096         .548585
  1994Q3                .605757         .566459
  1994Q4                .608271         .612359
  1995Q1                .629768         .588043
  1995Q2                .650686         .631008
  1995Q3                .636258         .648978
  1995Q4                .639807         .688076
  1996Q1                .671752         .667744
  1996Q2                .672043         .697388
  1996Q3                .672517         .710199
  1996Q4                .739631         .759572
  1997Q1                .770523         .778877
  1997Q2                .778891         .796431
  1997Q3                .797205         .803912
  1997Q4                .807399         .822091
  1998Q1                .813593         .812694
  1998Q2                .820985         .826227
  1998Q3                .818940         .831906
  1998Q4                .834932         .845243
  1999Q1                .836034         .838361
  1999Q2                .843772         .848855
  1999Q3                .855221         .853329
  1999Q4                .872225         .862780
  2000Q1                .878336         .857783
  2000Q2                .870320         .864694
  2000Q3                .884830         .867449
  2000Q4                .884991         .874301
  2001Q1                .892936         .870741
  2001Q2                .888140         .871959
  2001Q3                .860540         .871455

304> print mape21f


  Constant MAPE21F =    .309936E-01

305> page
306> !
306> use 1976q4 2016q1
307> a19z = az1*(1-mc95)
308> a21z = az3*(1-mc95)
309> a19b =  ab1 + ab1_m*mc95
310> a21b3 = ab3 - ab3_m*mc95 - ab3_97*d_r97
311> a21b5 = ab5 - ab5_m*mc95 + ab5_97*d_r97
312> a19f = af1
313> a21f = af3
314> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
```

```
315> mu: = sig:*ln((a:/pct:)-1) + d:
316> enddot


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 124 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 116 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 2 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 123 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 124 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 8 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 116 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 105 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 123 times.
```

```
317> !
317> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
318> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
319> zpct = 1 / (1 + exp(mu:/sig:))
320> gzpct = (napct-zpct)/napct
321> lzpct = 1 - gzpct
322> totbar = d: + sig:*log(1 - napct)/napct
323> lzbar = sig:*log(1 - zpct)/zpct
324> u: = (totbar - lzbar*lzpct)
325> enddot
326> use 1976q4 2001q3
327> vol3r_ncr = vol19n_l+vol19n_nl+vol19z+vol19b+vol19f+ ...
327> vol21n_l+vol21n_nl+vol21z+vol21b3+vol21b5+vol21f
328> dot '19z' '19b' '19f' '21z' '21b3' '21b5' '21f'
329> ppct: = vol: / vol3r_ncr
330> enddot
331> u3r_ncr = u19z*ppct19z+u19b*ppct19b+u19f*ppct19f+u21z*ppct21z+u21b3*ppct21b3+
...
331> u21b5*ppct21b5+u21f*ppct21f
332> revise px3r_ncru = ln(exp(px3r_ncr)+u3r_ncr)
333> replace u3r_ncr px3r_ncru
334> !
334> use 1997q1 2016q1
335> mu19b =
mu_b10+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+mu_b1tm*t_mc95+mu_b1mc*mc95
336> mu19z = mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t94*tz+mu_z1t*t
337> mu21b3 =
mu_b30+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+mu_b3tm*t_mc95+mu_b3mc*mc95
338> mu21b5 =
mu_b50+mu_b596*d96q4+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*t+mu_b5tm*t_mc95
+mu_b5mc*mc95
339> mu21z = mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t94*tz+mu_z3t*t
340> mu19f =
mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc95+mu_f1mc*mc95
341> mu21f =
mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc95+mu_f3mc*mc95
342> !
342> punchdif('mu3r_ncr') a19b a19f a21b3 a21b5 a21f ...
342> mu19b mu19f mu21b3 mu21b5 mu21f ...
342> sig19b sig19f sig21b3 sig21b5 sig21f


  *** File deleted ( 2): mu3r_ncr.dif
  *** File created ( 2): mu3r_ncr.dif
  *** File closed  ( 2): mu3r_ncr.dif

343> !
343> fresh
```

Standard Nonprofit

```
Soritec Log File
Thursday, June 07, 2001 15:02:39

3> access rcf_r2001


  *** File opened  ( 1): rcf_r2001.sdb

4> !
4> use 1976q4 2001q3
5> dot '22n_1' '22z' '22b'
6> pct: = vol: / (vol22n_1+vol22z+vol22b)
7> enddot
8> dot '22n_nl' '22f'
9> pct: = vol: / (vol22n_nl+vol22f)
10> enddot


  *** WARNING 190: Transformation at line 9.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


  *** WARNING 190: Transformation at line 9.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


11> dot '24n_1' '24z' '24b3' '24b5'
12> pct: = vol: / (vol24n_1+vol24z+vol24b3+vol24b5)
13> enddot


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 19 times.


  *** WARNING 190: Transformation at line 12.
  *** Divide by zero detected.
  *** Result set to zero.
```

```
      Occurs 19 times.


14> dot '24n_nl' '24f'
15> pct: = vol: / (vol24n_nl+vol24f)
16> enddot


  *** WARNING 190: Transformation at line 15.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


  *** WARNING 190: Transformation at line 15.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 65 times.


17> !
17> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
18> d: = d: / pc
19> enddot
20> !
20> use 1993q1 2016q1
21> dummy fall  1993q1 4
22> dummy winter 1993q2 4
23> dummy spring 1993q3 4
24> dummy summer 1993q4 4
25> dummy d96 1996q1 1
26> dummy mc96 1997q1 1
27> time t
28> t = t - 1
29> t_mc96 = t - 16
30> use 1993q1 1997q1
31> revise t_mc96 = 0
32> use 1997q1
33> revise mc96 = (49/66)
34> !
34> use 2004q1
35> t_inc = 1
36> on dynamic
37> use 2004q2 2005q1
38> revise t_inc = t_inc{-1} - .05
39> use 2005q2 2016q1
40> revise t_inc = t_inc{-1} - .075
41> use 2004q1 2016q1
42> t_inc = t_inc*(t_inc>=0)
43> revise t = t{-1} + t_inc
44> revise t_mc96 = t_mc96{-1} + t_inc
45> !
45> use 1994q1 2001q3
46> equation eb1 pct22b = (ab1+ab1_m*mc96) / ...
46>
(1+exp(-(d22b-(mu_b10+mu_b196*d96+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+m
u_b1tm*t_mc96+mu_b1mc*mc96)) / ...
46> sigb1))+ ...
```

```
46> 100000*((1-ab1-ab1_m)-abs(1-ab1-ab1_m)) + ...
46> 100000*(sigb1 - abs(sigb1))
46> parameter ab1 .581047 ab1_m 0 mu_b10 .100830 mu_b1f 0 mu_b1w 0 mu_b1s 0 ...
46> mu_b1t -.00328217 mu_b1tm 0 mu_b1mc -.0162635 sigb1 .002636
47> !
47> equation ez1 pct22z = (az1*(1-mc96)) / ...
47> (1+exp(-(d22z-(mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t*t)) / ...
47> sigz1)) + ...
47> 100000*((1-az1)-abs(1-az1)) + ...
47> 100000*(sigz1 - abs(sigz1))
47> parameter az1 .12 mu_z10 0.124126 mu_z1f 0 mu_z1w 0 mu_z1s 0 ...
47> mu_z1t 0.00172240 sigz1 .005
48> !
48> equation eb3 pct24b3 = (ab3+ab3_m*mc96) / ...
48>
(1+exp(-(d24b3-(mu_b30+mu_b396*d96+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+
mu_b3tm*t_mc96+mu_b3mc*mc96+oc24z+oc24b5)) / ...
48> sigb3))+ ...
48> 100000*((1-ab3-ab3_m)-abs(1-ab3-ab3_m)) + ...
48> 100000*(sigb3 - abs(sigb3))
48> parameter ab3 .6 ab3_m 0 mu_b30 .127491 mu_b3f 0.00575755 mu_b3w .00921375
mu_b3s .00486213 ...
48> mu_b3t -.00351127 mu_b3tm 0.00342737 mu_b3mc -.0536713 sigb3 .01
49> !
49> equation eb5 pct24b5 = ab5 / ...
49>
(1+exp(-(d24b5-(mu_b50+mu_b596*d96+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*t+
mu_b5tm*t_mc96+mu_b5mc*mc96+oc24z+oc24b3)) / ...
49> sigb5))+ ...
49> 100000*((1-ab5)-abs(1-ab5)) + ...
49> 100000*(sigb5 - abs(sigb5))
49> parameter ab5 .35 mu_b50 .0540578 mu_b5f -.0138797 mu_b5w -.00736231 mu_b5s
-.0101273 ...
49> mu_b5t -.00219255 mu_b5tm 0 mu_b5mc .0758367 sigb5 .02
50> !
50> equation ez3 pct24z = (az3*(1-mc96)) / ...
50>
(1+exp(-(d24z-(mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t*t+oc24b3+oc24b5
)) / ...
50> sigz3)) + ...
50> 100000*((1-az3)-abs(1-az3)) + ...
50> 100000*(sigz3 - abs(sigz3))
50> parameter az3 .12 mu_z30 0.111173 mu_z3f 0 mu_z3w 0 mu_z3s 0 ...
50> mu_z3t 0.00165150 sigz3 .005
51> !
51> equation ef1 pct22f = af1 / ...
51>
(1+exp(-(d22f-(mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc9
6+mu_f1mc*mc96)) / ...
51> sigf1))+ ...
51> 100000*((1-af1)-abs(1-af1)) + ...
51> 100000*(sigf1 - abs(sigf1))
51> parameter af1 .846962 mu_f10 .246176 mu_f1f 0.0108958 mu_f1w .00721682 mu_f1s
0.00764929 ...
51> mu_f1t -.00467237 mu_f1tm .00185297 mu_f1mc -.0493516 sigf1 .0620878
52> !
52> equation ef3 pct24f = af3 / ...
```

```
52>
(1+exp(-(d24f-(mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc9
6+mu_f3mc*mc96)) / ...
52> sigf3))+ ...
52> 100000*((1-af3)-abs(1-af3)) + ...
52> 100000*(sigf3 - abs(sigf3))
52> parameter af3 .867226 mu_f30 .0575023 mu_f3f 0.0101941 mu_f3w 0.00754642 mu_f3s
0.00337656 ...
52> mu_f3t -.00412941 mu_f3tm 0 mu_f3mc -.00894213 sigf3 .0422638
53> !
53> use 1994q1 2001q3
54> mu22z = sigz1*ln(((az1*(1-mc96))/pct22z)-1) + d22z


  *** WARNING 190: Transformation at line 54.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 16 times.

  *** WARNING 191: Transformation at line 54.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 2 times.

55> mu22b = sigb1*ln(((ab1+ab1_m*mc96)/pct22b)-1) + d22b


  *** WARNING 191: Transformation at line 55.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 9 times.

56> mu24z = sigz3*ln(((az3*(1-mc96))/pct24z)-1) + d24z


  *** WARNING 190: Transformation at line 56.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 17 times.

  *** WARNING 191: Transformation at line 56.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.

57> mu24b3 = sigb3*ln(((ab3+ab3_m*mc96)/pct24b3)-1) + d24b3
58> mu24b5 = sigb5*ln((ab5/pct24b5)-1) + d24b5


  *** WARNING 191: Transformation at line 58.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.

59> mu22f = sigf1*ln((af1/pct22f)-1) + d22f
60> mu24f = sigf3*ln((af3/pct24f)-1) + d24f
61> set sig22z = sigz1
62> set sig22b = sigb1
63> set sig24z = sigz3
64> set sig24b3 = sigb3
```

```
65> set sig24b5 = sigb5
66> set sig22f = sigf1
67> set sig24f = sigf3
68> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
69> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
70> zpct = 1 / (1 + exp(mu:/sig:))
71> gzpct = (napct-zpct)/napct
72> lzpct = 1 - gzpct
73> totbar = d: + sig:*log(1 - napct)/napct
74> lzbar = sig:*log(1 - zpct)/zpct
75> ubar = (totbar - lzbar*lzpct)
76> oc: = (d: - ubar)*pct:
77> enddot
78> !
78> mu22z = mu22z - oc22b
79> mu22b = mu22b - oc22z
80> mu24z = mu24z - oc24b3 - oc24b5
81> mu24b3 = mu24b3 - oc24z - oc24b5
82> mu24b5 = mu24b5 - oc24z - oc24b3
83> dot '22f' '24f'
84> regress mu: fall winter spring t mc96 t_mc96
85> parameter mu_:0 = ^coef(1)
86> parameter mu_:f = ^coef(2)
87> parameter mu_:w = ^coef(3)
88> parameter mu_:s = ^coef(4)
89> parameter mu_:t = ^coef(5)
90> parameter mu_:mc = ^coef(6)
91> parameter mu_:tm = ^coef(7)
92> enddot
```

REGRESS : dependent variable is MU22F

Using 1994Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.272288	.112632E-01	24.1749	.000
FALL	.242522E-02	.618436E-02	.392154	.698
WINTER	.689815E-02	.616035E-02	1.11977	.274
SPRING	.360559E-02	.612824E-02	.588356	.562
T	-.653791E-02	.992577E-03	-6.58680	.000
MC96	-.363867E-01	.935660E-02	-3.88888	.001
T_MC96	.309776E-02	.109517E-02	2.82858	.009

Equation Summary

No. of Observations =	31	R2= .9682	(adj)= .9603
Sum of Sq. Resid. =	.333404E-02	Std. Error of Reg.=	.117864E-01
Log(likelihood) =	97.6451	Durbin-Watson =	1.55073
Schwarz Criterion =	85.6261	F (6, 24) =	121.810
Akaike Criterion =	90.6451	Significance =	.000000

REGRESS : dependent variable is MU24F

Using 1994Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.474569E-01	.742175E-02	6.39430	.000
FALL	.483277E-02	.407509E-02	1.18593	.247
WINTER	.984724E-02	.405928E-02	2.42586	.023
SPRING	.695760E-02	.403812E-02	1.72298	.098
T	-.305342E-02	.654044E-03	-4.66852	.000
MC96	-.726737E-02	.616540E-02	-1.17873	.250
T_MC96	-.274433E-02	.721644E-03	-3.80289	.001

Equation Summary

No. of Observations =	31	R2= .9788	(adj)= .9735
Sum of Sq. Resid. =	.144763E-02	Std. Error of Reg.=	.776645E-02
Log(likelihood) =	110.576	Durbin-Watson =	1.58096
Schwarz Criterion =	98.5571	F (6, 24) =	184.870
Akaike Criterion =	103.576	Significance =	.000000

```
93> dot '22b' '24b3' '24b5'
94> regress mu: d96 fall winter spring t mc96 t_mc96
95> parameter mu_:0 = ^coef(1)
96> parameter mu_:96 = ^coef(2)
97> parameter mu_:f = ^coef(3)
98> parameter mu_:w = ^coef(4)
99> parameter mu_:s = ^coef(5)
100> parameter mu_:t = ^coef(6)
101> parameter mu_:mc = ^coef(7)
102> parameter mu_:tm = ^coef(8)
103> enddot
```

REGRESS : dependent variable is MU22B

Using 1994Q1-2001Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.187328E-01	.702118E-02	2.66804	.014
D96	-.166295E-02	.585885E-02	-.283836	.779
FALL	.660785E-03	.286664E-02	.230508	.820
WINTER	.271782E-02	.279855E-02	.971152	.342
SPRING	.205000E-03	.274406E-02	.747068E-01	.941
T	.594368E-04	.809246E-03	.734472E-01	.942
MC96	.149046E-01	.420061E-02	3.54819	.002
T_MC96	-.226378E-02	.831189E-03	-2.72355	.012

Equation Summary

No. of Observations =	31	R2= .8225	(adj)= .7685
Sum of Sq. Resid. =	.632631E-03	Std. Error of Reg.=	.524459E-02
Log(likelihood) =	123.407	Durbin-Watson =	1.10712
Schwarz Criterion =	109.671	F (7, 23) =	15.2295
Akaike Criterion =	115.407	Significance =	.000000

```
REGRESS : dependent variable is MU24B3

Using   1994Q1-2001Q3

    Variable          Coefficient      Std Err        T-stat      Signf

^CONST                 .213331E-01   .285803E-02    7.46424       .000
D96                   -.269194E-02   .238489E-02   -1.12875       .271
FALL                   .348933E-03   .116689E-02    .299028       .768
WINTER                 .579288E-03   .113918E-02    .508516       .616
SPRING                 .822091E-03   .111700E-02    .735985       .469
T                     -.383452E-03   .329410E-03   -1.16406       .256
MC96                  -.962622E-02   .170990E-02   -5.62971       .000
T_MC96                 .216682E-03   .338343E-03    .640421       .528


                          Equation Summary
   No. of Observations =      31       R2=    .9455   (adj)=    .9289
   Sum of Sq. Resid. =   .104825E-03   Std. Error of Reg.=  .213485E-02
   Log(likelihood)   =   151.270       Durbin-Watson     =    .95757
   Schwarz Criterion =   137.534       F (  7,   23)     =   56.9748
   Akaike Criterion  =   143.270       Significance      =   .000000


REGRESS : dependent variable is MU24B5

Using   1994Q1-2001Q3

    Variable          Coefficient      Std Err        T-stat      Signf

^CONST                -.127563E-02   .164809E-01   -.774007E-01   .939
D96                   -.155630E-01   .137525E-01   -1.13165       .269
FALL                  -.104642E-01   .672891E-02   -1.55511       .134
WINTER                -.574756E-02   .656908E-02   -.874942       .391
SPRING                -.767706E-02   .644117E-02   -1.19187       .245
T                     -.721938E-03   .189955E-02   -.380057       .707
MC96                   .567330E-01   .986015E-02    5.75377       .000
T_MC96                -.425968E-03   .195106E-02   -.218327       .829


                          Equation Summary
   No. of Observations =      31       R2=    .7190   (adj)=    .6335
   Sum of Sq. Resid. =   .348571E-02   Std. Error of Reg.=  .123107E-01
   Log(likelihood)   =   96.9555       Durbin-Watson     =   1.91652
   Schwarz Criterion =   83.2195       F (  7,   23)     =   8.40907
   Akaike Criterion  =   88.9555       Significance      =   .000041


104> use 1994q1 1996q3
105> dot '22z' '24z'
106> regress mu: fall winter spring t
107> parameter mu_:0 = ^coef(1)
108> parameter mu_:f = ^coef(2)
109> parameter mu_:w = ^coef(3)
110> parameter mu_:s = ^coef(4)
```

```
111> parameter mu_:t = ^coef(5)
112> enddot
```

REGRESS : dependent variable is MU22Z

Using 1994Q1-1996Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.124663E-01	.419644E-03	29.7068	.000
FALL	-.175646E-05	.340700E-03	-.515544E-02	.996
WINTER	.800929E-04	.338752E-03	.236435	.821
SPRING	-.520967E-03	.340700E-03	-1.52911	.177
T	.135833E-03	.363878E-04	3.73293	.010

Equation Summary

No. of Observations =	11	R2= .7340 (adj)=	.5566
Sum of Sq. Resid. =	.826220E-06	Std. Error of Reg.=	.371084E-03
Log(likelihood) =	74.6153	Durbin-Watson =	1.96149
Schwarz Criterion =	68.6206	F (4, 6) =	4.13858
Akaike Criterion =	69.6153	Significance =	.060280

REGRESS : dependent variable is MU24Z

Using 1994Q1-1996Q3

Variable	Coefficient	Std Err	T-stat	Signf
^CONST	.418804E-02	.945643E-03	4.42877	.004
FALL	-.306246E-03	.767748E-03	-.398889	.704
WINTER	-.247640E-03	.763357E-03	-.324410	.757
SPRING	-.501146E-03	.767748E-03	-.652748	.538
T	.175475E-04	.819977E-04	.213999	.838

Equation Summary

No. of Observations =	11	R2= .0712 (adj)=	-.5481
Sum of Sq. Resid. =	.419554E-05	Std. Error of Reg.=	.836215E-03
Log(likelihood) =	65.6783	Durbin-Watson =	2.38316
Schwarz Criterion =	59.6836	F (4, 6) =	.114914
Akaike Criterion =	60.6783	Significance =	.972425

```
113> !
113> dot 0 f w s t tm mc
114> parameter mu_b1: = mu_22b:
115> parameter mu_b3: = mu_24b3:
116> parameter mu_b5: = mu_24b5:
117> parameter mu_f1: = mu_22f:
118> parameter mu_f3: = mu_24f:
119> enddot
120> dot 96
121> parameter mu_b1: = mu_22b:
```

```
122> parameter mu_b3: = mu_24b3:
123> parameter mu_b5: = mu_24b5:
124> enddot
125> dot 0 f w s t
126> parameter mu_z1: = mu_22z:
127> parameter mu_z3: = mu_24z:
128> enddot
129> dot ab1_m ab3_m mu_f1f mu_f3mc mu_b1f mu_b196 mu_b1s mu_b1t ...
129> mu_b3f mu_b3w mu_b3s mu_b3tm mu_b596 mu_b5s mu_b5tm ...
129> mu_z1f mu_z1w mu_z1s mu_z3f mu_z3w mu_z3s
130> constant : = 0
131> enddot


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined AB1_M as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined AB3_M as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_F1F as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_F3MC as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B1F as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B196 as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B1S as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B1T as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B3F as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B3W as different type of item.


  *** WARNING 198: Command CONSTANT at line 130.
  *** Redefined MU_B3S as different type of item.
```

```
   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_B3TM as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_B596 as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_B5S as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_B5TM as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z1F as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z1W as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z1S as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z3F as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z3W as different type of item.


   *** WARNING 198: Command CONSTANT at line 130.
   *** Redefined MU_Z3S as different type of item.


132> !
132> dot mu_b10 mu_b1w mu_b1mc mu_b1tm mu_b50 mu_b5f mu_b5w mu_b5t mu_b5mc
133> constant : = :
134> enddot


   *** WARNING 198: Command CONSTANT at line 133.
   *** Redefined MU_B10 as different type of item.


   *** WARNING 198: Command CONSTANT at line 133.
   *** Redefined MU_B1W as different type of item.


   *** WARNING 198: Command CONSTANT at line 133.
   *** Redefined MU_B1MC as different type of item.
```

```
 Convergence achieved after 11 iterations.

          Equation EB5

          Dependent variable is PCT24B5

     Variable          Coefficient       Std Err        T-stat       Signf

 AB5                      .511227        .158949       3.21630        .011
 SIGB5                    .107649        .282130       .381559        .712


        R-Squared=  .23041E-01 No. obs=    11
        R-Bar-Squared (adj)        =  -.85510E-01
        Durbin-Watson (   0 gaps) =  1.434520
        Sum of squared residuals =    .135662E-01
        Std. error of regression =    .388247E-01
        Sum of residuals =           -.210408E-04
        Mean of dependent variable =  .290100
        Log of likelihood function =  21.2311

137> dot sigb1 sigb5
138> constant : = :
139> enddot


  *** WARNING 198: Command CONSTANT at line 138.
  *** Redefined SIGB1 as different type of item.


  *** WARNING 198: Command CONSTANT at line 138.
  *** Redefined SIGB5 as different type of item.


140> dot mu_b10 mu_b1w mu_b1mc mu_b1tm mu_b50 mu_b5f mu_b5w mu_b5t mu_b5mc
141> parameter : = :
142> enddot


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B10 as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B1W as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B1MC as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B1TM as different type of item.
```

```
*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B1TM as different type of item.


*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B50 as different type of item.


*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B5F as different type of item.


*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B5W as different type of item.


*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B5T as different type of item.


*** WARNING 198: Command CONSTANT at line 133.
*** Redefined MU_B5MC as different type of item.


135> regress eb1

          Nonlinear Least Squares

  Convergence achieved after 8 iterations.

          Equation EB1

          Dependent variable is PCT22B

    Variable          Coefficient      Std Err        T-stat       Signf

  AB1                    .386993      .203219E-01    19.0431        .000
  SIGB1                  .279577E-01  .436902E-01    .639909        .538


       R-Squared=  .41651E-01 No. obs=    11
       R-Bar-Squared (adj)        =  -.64832E-01
       Durbin-Watson (   0 gaps) =   .781370
       Sum of squared residuals =    .428956E-02
       Std. error of regression =    .218316E-01
       Sum of residuals =            .586891E-06
       Mean of dependent variable =  .188659
       Log of likelihood function =  27.5637

136> regress eb5

          Nonlinear Least Squares
```

```
  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B50 as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B5F as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B5W as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B5T as different type of item.


  *** WARNING 198: Command PARAMETER at line 141.
  *** Redefined MU_B5MC as different type of item.


142> !
143> use 1994q1 2001q3
144> set iteration = 0
145> do
146> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
147> boc: = oc:
148> enddot
149> !
149> regress (maxit=500) ez1
150> mu22z = sigz1*ln(((az1*(1-mc96))/pct22z)-1) + d22z
151> napct = 1 / (1 + exp(-(d22z-mu22z)/sigz1))
152> zpct = 1 / (1 + exp(mu22z/sigz1))
153> gzpct = (napct-zpct)/napct
154> lzpct = 1 - gzpct
155> totbar = d22z + sigz1*log(1 - napct)/napct
156> lzbar = sigz1*log(1 - zpct)/zpct
157> ubar = (totbar - lzbar*lzpct)
158> revise oc22z = (d22z - ubar)*pct22z
159> !
159> regress (maxit=500) ez3
160> mu24z = sigz3*ln(((az3*(1-mc96))/pct24z)-1) + d24z
161> napct = 1 / (1 + exp(-(d24z-mu24z)/sigz3))
162> zpct = 1 / (1 + exp(mu24z/sigz3))
163> gzpct = (napct-zpct)/napct
164> lzpct = 1 - gzpct
165> totbar = d24z + sigz3*log(1 - napct)/napct
166> lzbar = sigz3*log(1 - zpct)/zpct
167> ubar = (totbar - lzbar*lzpct)
168> revise oc24z = (d24z - ubar)*pct24z
169> !
169> regress (maxit=500) eb1
170> mu22b = sigb1*ln(((ab1+ab1_m*mc96)/pct22b)-1) + d22b
171> napct = 1 / (1 + exp(-(d22b-mu22b)/sigb1))
172> zpct = 1 / (1 + exp(mu22b/sigb1))
173> gzpct = (napct-zpct)/napct
174> lzpct = 1 - gzpct
175> totbar = d22b + sigb1*log(1 - napct)/napct
176> lzbar = sigb1*log(1 - zpct)/zpct
```

```
177> ubar = (totbar - lzbar*lzpct)
178> revise oc22b = (d22b - ubar)*pct22b
179> !
179> regress (maxit=500) eb3
180> mu24b3 = sigb3*ln(((ab3+ab3_m*mc96)/pct24b3)-1) + d24b3
181> napct = 1 / (1 + exp(-(d24b3-mu24b3)/sigb3))
182> zpct = 1 / (1 + exp(mu24b3/sigb3))
183> gzpct = (napct-zpct)/napct
184> lzpct = 1 - gzpct
185> totbar = d24b3 + sigb3*log(1 - napct)/napct
186> lzbar = sigb3*log(1 - zpct)/zpct
187> ubar = (totbar - lzbar*lzpct)
188> revise oc24b3 = (d24b3 - ubar)*pct24b3
189> !
189> regress (maxit=500) eb5
190> mu24b5 = sigb5*ln((ab5/pct24b5)-1) + d24b5
191> napct = 1 / (1 + exp(-(d24b5-mu24b5)/sigb5))
192> zpct = 1 / (1 + exp(mu24b5/sigb5))
193> gzpct = (napct-zpct)/napct
194> lzpct = 1 - gzpct
195> totbar = d24b5 + sigb5*log(1 - napct)/napct
196> lzbar = sigb5*log(1 - zpct)/zpct
197> ubar = (totbar - lzbar*lzpct)
198> revise oc24b5 = (d24b5 - ubar)*pct24b5
199> !
199> regress (maxit=500) ef1
200> mu22f = sigf1*ln((af1/pct22f)-1) + d22f
201> napct = 1 / (1 + exp(-(d22f-mu22f)/sigf1))
202> zpct = 1 / (1 + exp(mu22f/sigf1))
203> gzpct = (napct-zpct)/napct
204> lzpct = 1 - gzpct
205> totbar = d22f + sigf1*log(1 - napct)/napct
206> lzbar = sigf1*log(1 - zpct)/zpct
207> ubar = (totbar - lzbar*lzpct)
208> revise oc22f = (d22f - ubar)*pct22f
209> !
209> regress (maxit=500) ef3
210> mu24f = sigf3*ln((af3/pct24f)-1) + d24f
211> napct = 1 / (1 + exp(-(d24f-mu24f)/sigf3))
212> zpct = 1 / (1 + exp(mu24f/sigf3))
213> gzpct = (napct-zpct)/napct
214> lzpct = 1 - gzpct
215> totbar = d24f + sigf3*log(1 - napct)/napct
216> lzbar = sigf3*log(1 - zpct)/zpct
217> ubar = (totbar - lzbar*lzpct)
218> revise oc24f = (d24f - ubar)*pct24f
219> !
219> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
220> dsq: = (oc: - boc:)**2
221> enddot
222> set iteration = iteration + 1
223> dsq = dsq22z + dsq22b + dsq22f + dsq24z + dsq24b3 + dsq24b5 + dsq22f + dsq24f
224> teststat = sum(dsq)
225> print teststat
226> if (iteration .gt. 10) set teststat = -3
228> until (teststat<0.00000001)
```

Nonlinear Least Squares

Convergence achieved after 40 iterations.

Equation EZ1

Dependent variable is PCT22Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.296005E-01	.339377E-02	8.72200	.000
MU_Z10	-.141847E-01	.178014E-01	-.796829	.433
MU_Z1T	.108159E-02	.937923E-03	1.15318	.259
SIGZ1	.753306E-02	.499870E-02	1.50700	.143

R-Squared= .99542 No. obs= 31
R-Bar-Squared (adj) = .99491
Durbin-Watson (0 gaps) = 2.840816
Sum of squared residuals = .191356E-04
Std. error of regression = .841858E-03
Sum of residuals = .145334E-04
Mean of dependent variable = .929920E-02
Log of likelihood function = 177.631

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
Occurs 16 times.

*** WARNING 191: Transformation at line 150.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 33 iterations.

Equation EZ3

Dependent variable is PCT24Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.789191E-01	.172748	.456844	.651
MU_Z30	.201938E-02	.728106E-01	.277347E-01	.978
MU_Z3T	.583806E-03	.390234E-03	1.49604	.146
SIGZ3	.174121E-01	.235446E-01	.739536	.466

```
      R-Squared=  .99399     No. obs=    31
      R-Bar-Squared (adj)        =   .99333
      Durbin-Watson (   0 gaps) =  2.684212
      Sum of squared residuals =    .383783E-04
      Std. error of regression =    .119223E-02
      Sum of residuals =           -.147809E-02
      Mean of dependent variable =  .114434E-01
      Log of likelihood function =  166.844


*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 17 times.

*** WARNING 191: Transformation at line 160.
*** Tried to take log of zero or negative number.
*** Result set to zero.


         Nonlinear Least Squares

Convergence achieved after 12 iterations.


         Equation EB1

         Dependent variable is PCT22B

    Variable          Coefficient      Std Err        T-stat      Signf

AB1                     .668104       .288753E-01    23.1376       .000
MU_B10                  .408401E-01   .267082E-02    15.2912       .000
MU_B1W                  .397572E-02   .335161E-02     1.18621      .246
MU_B1TM                -.392242E-02   .145084E-02    -2.70355      .012
MU_B1MC                -.279785E-01   .425390E-02    -6.57715      .000


      R-Squared=  .97704     No. obs=    31
      R-Bar-Squared (adj)        =   .97351
      Durbin-Watson (   0 gaps) =  1.120476
      Sum of squared residuals =    .264014E-01
      Std. error of regression =    .318659E-01
      Sum of residuals =           -.510607E-03
      Mean of dependent variable =  .427990
      Log of likelihood function =  65.5720


*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.


         Nonlinear Least Squares
```

Convergence achieved after 7 iterations.

Equation EB3

Dependent variable is PCT24B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.553365	.498199E-01	11.1073	.000
MU_B30	.393627E-01	.262696E-01	1.49841	.147
MU_B396	-.481858E-02	.527455E-02	-.913553	.370
MU_B3T	-.868604E-03	.518153E-03	-1.67635	.106
MU_B3MC	-.383449E-01	.337266E-01	-1.13693	.266
SIGB3	.224602E-01	.178234E-01	1.26015	.219

R-Squared= .99302 No. obs= 31
R-Bar-Squared (adj) = .99162
Durbin-Watson (0 gaps) = 1.936598
Sum of squared residuals = .573747E-02
Std. error of regression = .151492E-01
Sum of residuals = .705821E-03
Mean of dependent variable = .343827
Log of likelihood function = 89.2311

Nonlinear Least Squares

Convergence achieved after 39 iterations.

Equation EB5

Dependent variable is PCT24B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.520095	.387563	1.34196	.192
MU_B50	.495540E-01	.135751	.365037	.718
MU_B5F	-.263739E-01	.231863E-01	-1.13748	.266
MU_B5W	-.754147E-02	.109530E-01	-.688528	.497
MU_B5T	-.525035E-02	.441191E-02	-1.19004	.245
MU_B5MC	.128437	.952678E-01	1.34817	.190

R-Squared= .74174 No. obs= 31
R-Bar-Squared (adj) = .69009
Durbin-Watson (0 gaps) = 1.941648
Sum of squared residuals = .152125E-01
Std. error of regression = .246678E-01
Sum of residuals = .207293E-02
Mean of dependent variable = .266184
Log of likelihood function = 74.1171

Nonlinear Least Squares

Convergence achieved after 12 iterations.

Equation EF1

Dependent variable is PCT22F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.886379	.756242	1.17208	.253
MU_F10	4.67409	14.1543	.330225	.744
MU_F1W	.140749	.465941	.302076	.765
MU_F1S	-.697872E-02	.528746E-01	-.131986	.896
MU_F1T	-.158931	.502004	-.316594	.754
MU_F1TM	.788036E-01	.236975	.332539	.742
MU_F1MC	-.224771	.690860	-.325350	.748
SIGF1	1.01347	3.16447	.320267	.752

R-Squared= .98640 No. obs= 31
R-Bar-Squared (adj) = .98226
Durbin-Watson (0 gaps) = 2.339227
Sum of squared residuals = .450663E-02
Std. error of regression = .139979E-01
Sum of residuals = .114300E-01
Mean of dependent variable = .150208
Log of likelihood function = 92.9739

Nonlinear Least Squares

No improvement in fit after 23 iterations.

Equation EF3

Dependent variable is PCT24F

Variable	Coefficient	Std Err	T-stat	Signf
AF3	1.00000	.180589	5.53743	.000
MU_F30	.388708E-01	.101220E-01	3.84022	.001
MU_F3F	.164624E-02	.124680E-02	1.32037	.200
MU_F3W	.309185E-02	.145245E-02	2.12871	.044
MU_F3S	.177320E-02	.133193E-02	1.33130	.196
MU_F3T	-.145906E-02	.496056E-03	-2.94132	.007
MU_F3TM	-.419870E-03	.547886E-03	-.766346	.451
SIGF3	.216540E-01	.587735E-02	3.68432	.001

```
R-Squared=  .98629     No. obs=    31
R-Bar-Squared (adj)        =   .98212
Durbin-Watson (   0 gaps) =  1.242867
Sum of squared residuals =    .125516E-01
Std. error of regression =    .233607E-01
Sum of residuals =            .158529
Mean of dependent variable =  .601142
Log of likelihood function =  77.0973

Constant TESTSTAT =   .159003E-02

         Nonlinear Least Squares

Convergence achieved after 1 iterations.

         Equation EZ1

         Dependent variable is PCT22Z

    Variable          Coefficient      Std Err        T-stat      Signf

AZ1                    .296004E-01   .339446E-02    8.72022       .000
MU_Z10                -.141849E-01   .178008E-01   -.796870       .432
MU_Z1T                 .108160E-02   .937877E-03    1.15325       .259
SIGZ1                  .753305E-02   .499886E-02    1.50695       .143

      R-Squared=  .99542     No. obs=    31
      R-Bar-Squared (adj)        =   .99491
      Durbin-Watson (   0 gaps) =  2.840817
      Sum of squared residuals =    .191356E-04
      Std. error of regression =    .841858E-03
      Sum of residuals =            .145343E-04
      Mean of dependent variable =  .929920E-02
      Log of likelihood function =  177.631

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.
    Occurs 16 times.

*** WARNING 191: Transformation at line 150.
*** Tried to take log of zero or negative number.
*** Result set to zero.
    Occurs 2 times.

         Nonlinear Least Squares

Convergence achieved after 47 iterations.
```

Equation EZ3

Dependent variable is PCT24Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.343595	6.28129	.547013E-01	.957
MU_Z30	.464374E-01	.535461	.867242E-01	.932
MU_Z3T	.515038E-03	.371385E-03	1.38680	.177
SIGZ3	.224953E-01	.370065E-01	.607876	.548

R-Squared= .99415 No. obs= 31
R-Bar-Squared (adj) = .99350
Durbin-Watson (0 gaps) = 2.624765
Sum of squared residuals = .373812E-04
Std. error of regression = .117664E-02
Sum of residuals = -.119165E-02
Mean of dependent variable = .114434E-01
Log of likelihood function = 167.252

*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
Occurs 17 times.

*** WARNING 191: Transformation at line 160.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB1

Dependent variable is PCT22B

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.667986	.289588E-01	23.0668	.000
MU_B10	.408328E-01	.267359E-02	15.2727	.000
MU_B1W	.397546E-02	.334986E-02	1.18675	.246
MU_B1TM	-.392911E-02	.144818E-02	-2.71313	.012
MU_B1MC	-.279705E-01	.424893E-02	-6.58296	.000

R-Squared= .97704 No. obs= 31
R-Bar-Squared (adj) = .97351
Durbin-Watson (0 gaps) = 1.119951
Sum of squared residuals = .264014E-01

```
      Std. error of regression =     .318659E-01
      Sum of residuals =           -.512932E-03
      Mean of dependent variable =  .427990
      Log of likelihood function =  65.5720


*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.


         Nonlinear Least Squares


Convergence achieved after 4 iterations.


         Equation EB3

         Dependent variable is PCT24B3
```

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.551950	.491126E-01	11.2385	.000
MU_B30	.315342E-01	.204126E-01	1.54484	.135
MU_B396	-.356219E-02	.407892E-02	-.873317	.391
MU_B3T	-.707355E-03	.408648E-03	-1.73097	.096
MU_B3MC	-.286649E-01	.263687E-01	-1.08708	.287
SIGB3	.172739E-01	.138659E-01	1.24578	.224

```
      R-Squared=  .99299     No. obs=    31
      R-Bar-Squared (adj)        =   .99158
      Durbin-Watson (   0 gaps) =  1.908589
      Sum of squared residuals =    .576384E-02
      Std. error of regression =    .151840E-01
      Sum of residuals =            .709169E-03
      Mean of dependent variable =  .343827
      Log of likelihood function =  89.1601


         Nonlinear Least Squares


Convergence achieved after 10 iterations.


         Equation EB5

         Dependent variable is PCT24B5
```

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.517199	.377481	1.37013	.183
MU_B50	.484963E-01	.133499	.363270	.719
MU_B5F	-.264877E-01	.231337E-01	-1.14498	.263

MU_B5W	-.758761E-02	.109880E-01	-.690536	.496
MU_B5T	-.527349E-02	.439527E-02	-1.19981	.241
MU_B5MC	.129265	.949088E-01	1.36199	.185

R-Squared= .74147 No. obs= 31
R-Bar-Squared (adj) = .68977
Durbin-Watson (0 gaps) = 1.938324
Sum of squared residuals = .152282E-01
Std. error of regression = .246805E-01
Sum of residuals = .210664E-02
Mean of dependent variable = .266184
Log of likelihood function = 74.1011

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT22F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.886445	.756818	1.17128	.253
MU_F10	4.67373	14.1430	.330463	.744
MU_F1W	.140734	.465543	.302301	.765
MU_F1S	-.697851E-02	.528482E-01	-.132048	.896
MU_F1T	-.158917	.501591	-.316825	.754
MU_F1TM	.787990E-01	.236809	.332753	.742
MU_F1MC	-.224747	.690252	-.325601	.748
SIGF1	1.01337	3.16177	.320508	.751

R-Squared= .98640 No. obs= 31
R-Bar-Squared (adj) = .98226
Durbin-Watson (0 gaps) = 2.339205
Sum of squared residuals = .450663E-02
Std. error of regression = .139979E-01
Sum of residuals = .114301E-01
Mean of dependent variable = .150208
Log of likelihood function = 92.9739

Nonlinear Least Squares

No improvement in fit after 1 iterations.

Equation EF3

Dependent variable is PCT24F

Variable	Coefficient	Std Err	T-stat	Signf
AF3	1.00000	.180589	5.53743	.000
MU_F30	.388708E-01	.101220E-01	3.84022	.001
MU_F3F	.164624E-02	.124680E-02	1.32037	.200
MU_F3W	.309185E-02	.145245E-02	2.12871	.044
MU_F3S	.177320E-02	.133193E-02	1.33130	.196
MU_F3T	-.145906E-02	.496056E-03	-2.94132	.007
MU_F3TM	-.419870E-03	.547886E-03	-.766346	.451
SIGF3	.216540E-01	.587735E-02	3.68432	.001

R-Squared= .98629 No. obs= 31
R-Bar-Squared (adj) = .98212
Durbin-Watson (0 gaps) = 1.242867
Sum of squared residuals = .125516E-01
Std. error of regression = .233607E-01
Sum of residuals = .158529
Mean of dependent variable = .601142
Log of likelihood function = 77.0973

Constant TESTSTAT = .224668E-05

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EZ1

Dependent variable is PCT22Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ1	.296004E-01	.339436E-02	8.72047	.000
MU_Z10	-.141849E-01	.178009E-01	-.796862	.432
MU_Z1T	.108160E-02	.937887E-03	1.15323	.259
SIGZ1	.753305E-02	.499886E-02	1.50695	.143

R-Squared= .99542 No. obs= 31
R-Bar-Squared (adj) = .99491
Durbin-Watson (0 gaps) = 2.840817
Sum of squared residuals = .191356E-04
Std. error of regression = .841858E-03
Sum of residuals = .145341E-04
Mean of dependent variable = .929920E-02
Log of likelihood function = 177.631

*** WARNING 190: Transformation at line 150.
*** Divide by zero detected.
*** Result set to zero.

Occurs 16 times.

*** WARNING 191: Transformation at line 150.
*** Tried to take log of zero or negative number.
*** Result set to zero.
Occurs 2 times.

Nonlinear Least Squares

Convergence achieved after 86 iterations.

Equation EZ3

Dependent variable is PCT24Z

Variable	Coefficient	Std Err	T-stat	Signf
AZ3	.219879	2.31492	.949835E-01	.925
MU_Z30	.324454E-01	.313983	.103335	.918
MU_Z3T	.503434E-03	.359568E-03	1.40011	.173
SIGZ3	.209477E-01	.326887E-01	.640824	.527

R-Squared= .99415 No. obs= 31
R-Bar-Squared (adj) = .99351
Durbin-Watson (0 gaps) = 2.621265
Sum of squared residuals = .373436E-04
Std. error of regression = .117605E-02
Sum of residuals = -.118059E-02
Mean of dependent variable = .114434E-01
Log of likelihood function = 167.268

*** WARNING 190: Transformation at line 160.
*** Divide by zero detected.
*** Result set to zero.
Occurs 17 times.

*** WARNING 191: Transformation at line 160.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB1

Dependent variable is PCT22B

Variable	Coefficient	Std Err	T-stat	Signf
AB1	.668064	.289038E-01	23.1134	.000
MU_B10	.408376E-01	.267177E-02	15.2849	.000
MU_B1W	.397563E-02	.335101E-02	1.18640	.246
MU_B1TM	-.392471E-02	.144993E-02	-2.70682	.012
MU_B1MC	-.279758E-01	.425219E-02	-6.57914	.000

R-Squared= .97704 No. obs= 31
R-Bar-Squared (adj) = .97351
Durbin-Watson (0 gaps) = 1.120296
Sum of squared residuals = .264013E-01
Std. error of regression = .318659E-01
Sum of residuals = -.514575E-03
Mean of dependent variable = .427990
Log of likelihood function = 65.5720

*** WARNING 191: Transformation at line 170.
*** Tried to take log of zero or negative number.
*** Result set to zero.

Nonlinear Least Squares

Convergence achieved after 2 iterations.

Equation EB3

Dependent variable is PCT24B3

Variable	Coefficient	Std Err	T-stat	Signf
AB3	.551911	.489675E-01	11.2710	.000
MU_B30	.314923E-01	.203320E-01	1.54890	.134
MU_B396	-.355522E-02	.406310E-02	-.875003	.390
MU_B3T	-.706776E-03	.407701E-03	-1.73356	.095
MU_B3MC	-.286044E-01	.262768E-01	-1.08858	.287
SIGB3	.172446E-01	.138125E-01	1.24848	.223

R-Squared= .99299 No. obs= 31
R-Bar-Squared (adj) = .99159
Durbin-Watson (0 gaps) = 1.907959
Sum of squared residuals = .576204E-02
Std. error of regression = .151816E-01
Sum of residuals = .712763E-03
Mean of dependent variable = .343827
Log of likelihood function = 89.1649

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EB5

Dependent variable is PCT24B5

Variable	Coefficient	Std Err	T-stat	Signf
AB5	.517071	.377825	1.36855	.183
MU_B50	.484523E-01	.133559	.362777	.720
MU_B5F	-.264951E-01	.231290E-01	-1.14553	.263
MU_B5W	-.758993E-02	.109850E-01	-.690939	.496
MU_B5T	-.527498E-02	.439440E-02	-1.20039	.241
MU_B5MC	.129299	.948890E-01	1.36263	.185

R-Squared= .74147 No. obs= 31
R-Bar-Squared (adj) = .68977
Durbin-Watson (0 gaps) = 1.938318
Sum of squared residuals = .152283E-01
Std. error of regression = .246806E-01
Sum of residuals = .210790E-02
Mean of dependent variable = .266184
Log of likelihood function = 74.1011

Nonlinear Least Squares

Convergence achieved after 1 iterations.

Equation EF1

Dependent variable is PCT22F

Variable	Coefficient	Std Err	T-stat	Signf
AF1	.886462	.756973	1.17106	.254
MU_F10	4.67364	14.1399	.330527	.744
MU_F1W	.140730	.465436	.302362	.765
MU_F1S	-.697846E-02	.528411E-01	-.132065	.896
MU_F1T	-.158913	.501480	-.316888	.754
MU_F1TM	.787978E-01	.236764	.332811	.742
MU_F1MC	-.224740	.690090	-.325668	.748
SIGF1	1.01335	3.16105	.320573	.751

R-Squared= .98640 No. obs= 31
R-Bar-Squared (adj) = .98226
Durbin-Watson (0 gaps) = 2.339199
Sum of squared residuals = .450663E-02
Std. error of regression = .139979E-01
Sum of residuals = .114302E-01
Mean of dependent variable = .150208

```
      Log of likelihood function =  92.9739

         Nonlinear Least Squares

 No improvement in fit after 1 iterations.

         Equation EF3

         Dependent variable is PCT24F

    Variable          Coefficient       Std Err        T-stat       Signf

 AF3                    1.00000        .180589        5.53743       .000
 MU_F30                 .388708E-01    .101220E-01    3.84022       .001
 MU_F3F                 .164624E-02    .124680E-02    1.32037       .200
 MU_F3W                 .309185E-02    .145245E-02    2.12871       .044
 MU_F3S                 .177320E-02    .133193E-02    1.33130       .196
 MU_F3T                -.145906E-02    .496056E-03   -2.94132       .007
 MU_F3TM               -.419870E-03    .547886E-03   -.766346       .451
 SIGF3                  .216540E-01    .587735E-02    3.68432       .001


       R-Squared=  .98629     No. obs=    31
       R-Bar-Squared (adj)        =   .98212
       Durbin-Watson (   0 gaps) =  1.242867
       Sum of squared residuals =     .125516E-01
       Std. error of regression =     .233607E-01
       Sum of residuals =             .158529
       Mean of dependent variable =  .601142
       Log of likelihood function =  77.0973


  Constant TESTSTAT =   .209458E-09


229> print teststat iteration


  Constant TESTSTAT =   .209458E-09

  Constant ITERATION =   3.00000

230> !
230> a22z = az1*(1-mc96)
231> a24z = az3*(1-mc96)
232> a22b = ab1+ab1_m*mc96
233> a24b3 = ab3 + ab3_m*mc96
234> a24b5 = ab5
235> a22f = af1
236> a24f = af3
237> set sig22z = sigz1
238> set sig22b = sigb1
239> set sig24z = sigz3
240> set sig24b3 = sigb3
```

```
241> set sig24b5 = sigb5
242> set sig22f = sigf1
243> set sig24f = sigf3
244> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
245> mu: = sig:*ln((a:/pct:)-1) + d:
246> enddot


  *** WARNING 190: Transformation at line 245.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 16 times.

  *** WARNING 191: Transformation at line 245.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 2 times.


  *** WARNING 191: Transformation at line 245.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


  *** WARNING 190: Transformation at line 245.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 17 times.

  *** WARNING 191: Transformation at line 245.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


247> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
248> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
249> zpct = 1 / (1 + exp(mu:/sig:))
250> gzpct = (napct-zpct)/napct
251> lzpct = 1 - gzpct
252> totbar = d: + sig:*log(1 - napct)/napct
253> lzbar = sig:*log(1 - zpct)/zpct
254> ubar = (totbar - lzbar*lzpct)
255> revise oc: = (d: - ubar)*pct:
256> enddot
257> !
257> fpct22b = (ab1+ab1_m*mc96) / ...
257>
(1+exp(-(d22b-(mu_b10+mu_b196*d96+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+m
u_b1tm*t_mc96+mu_b1mc*mc96)) / ...
257> sigb1))
258> fpct22z = (az1*(1-mc96)) / ...
258> (1+exp(-(d22z-(mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t*t)) / ...
258> sigz1))
259> fpct24b3 = (ab3+ab3_m*mc96) / ...
259>
(1+exp(-(d24b3-(mu_b30+mu_b396*d96+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+
mu_b3tm*t_mc96+mu_b3mc*mc96+oc24z+oc24b5)) / ...
259> sigb3))
```

```
260> fpct24b5 = ab5 / ...
260>
(1+exp(-(d24b5-(mu_b50+mu_b596*d96+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*t+
mu_b5tm*t_mc96+mu_b5mc*mc96+oc24z+oc24b3)) / ...
260> sigb5))
261> fpct24z = (az3*(1-mc96)) / ...
261>
(1+exp(-(d24z-(mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t*t+oc24b3+oc24b5
)) / ...
261> sigz3))
262> fpct22f = af1 / ...
262>
(1+exp(-(d22f-(mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc9
6+mu_f1mc*mc96)) / ...
262> sigf1))
263> fpct24f = af3 / ...
263>
(1+exp(-(d24f-(mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc9
6+mu_f3mc*mc96)) / ...
263> sigf3))
264> !
264> fpct22n_1 = 1 - fpct22z - fpct22b
265> fpct22n_nl = 1 - fpct22f
266> fpct24n_1 = 1 - fpct24z - fpct24b3 - fpct24b5
267> fpct24n_nl = 1 - fpct24f
268> dot '22n_1' '22n_nl' '22z' '22b' '22f' '24n_1' '24n_nl' '24z' '24b3' '24b5'
'24f'
269> ape: = sum(abs(fpct:/pct:-1)*pct:)
270> denom: = sum(pct:)
271> set mape: = ape: / denom:
272> enddot


  *** WARNING 241: Transformation at line 269.
  *** Divide by zero.  Result set to zero.
      Occurs 16 times.


  *** WARNING 241: Transformation at line 269.
  *** Divide by zero.  Result set to zero.
      Occurs 17 times.


273> print pct22n_1 fpct22n_1

                          PCT22N_L      FPCT22N_
                                        L

  1994Q1                .803971        .768398
  1994Q2                .808235        .788620
  1994Q3                .765765        .769882
  1994Q4                .805258        .771114
  1995Q1                .808199        .772192
  1995Q2                .807328        .789051
  1995Q3                .780933        .769229
  1995Q4                .788326        .770428
  1996Q1                .768307        .771642
```

1996Q2	.760239	.792595
1996Q3	.763721	.774476
1996Q4	.658721	.775818
1997Q1	.592394	.609979
1997Q2	.557129	.553108
1997Q3	.524125	.514066
1997Q4	.503870	.496447
1998Q1	.461393	.480207
1998Q2	.465813	.480552
1998Q3	.455544	.450691
1998Q4	.442190	.437973
1999Q1	.431081	.426382
1999Q2	.422529	.402628
1999Q3	.418365	.375726
1999Q4	.409867	.370607
2000Q1	.361232	.366159
2000Q2	.368779	.366525
2000Q3	.354036	.358699
2000Q4	.347264	.355459
2001Q1	.325706	.352644
2001Q2	.344342	.364966
2001Q3	.339383	.367280

```
274> print mape22n_l

  Constant MAPE22N_L =    .358052E-01

275> page
276> print pct22n_nl fpct22n_nl
```

	PCT22N_NL	FPCT22N_NL
1994Q1	.974390	.983396
1994Q2	.970771	.983102
1994Q3	.970432	.977287
1994Q4	.968940	.973727
1995Q1	.968530	.969425
1995Q2	.965739	.968872
1995Q3	.966897	.958385
1995Q4	.958983	.952023
1996Q1	.960197	.944395
1996Q2	.943890	.943459
1996Q3	.944586	.925179
1996Q4	.886731	.914255
1997Q1	.887961	.886089
1997Q2	.889745	.886420
1997Q3	.871523	.862247
1997Q4	.855273	.853647
1998Q1	.849820	.843741
1998Q2	.848919	.851295
1998Q3	.798887	.821368
1998Q4	.815944	.810864
1999Q1	.805074	.798848
1999Q2	.792250	.805782
1999Q3	.782172	.767726

1999Q4	.758398	.755183
2000Q1	.718209	.740986
2000Q2	.743080	.751862
2000Q3	.710725	.709862
2000Q4	.715915	.695639
2001Q1	.669679	.679698
2001Q2	.712182	.692940
2001Q3	.637700	.647272

```
277> print mape22n_nl

  Constant MAPE22N_NL =    .112630E-01

278> page
279> print pct22z fpct22z
```

	PCT22Z	FPCT22Z
1994Q1	.263644E-01	.268850E-01
1994Q2	.255821E-01	.265025E-01
1994Q3	.292405E-01	.260666E-01
1994Q4	.238675E-01	.255674E-01
1995Q1	.248476E-01	.250185E-01
1995Q2	.235871E-01	.244144E-01
1995Q3	.253387E-01	.237444E-01
1995Q4	.233425E-01	.230163E-01
1996Q1	.216770E-01	.222282E-01
1996Q2	.207868E-01	.213792E-01
1996Q3	.198399E-01	.204595E-01
1996Q4	.203110E-01	.195023E-01
1997Q1	.348985E-02	.347642E-02
1997Q2	.822984E-07	0.00000
1997Q3	.404594E-07	0.00000
1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000
1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
280> print mape22z

  Constant MAPE22Z =    .409984E-01

281> page
```

```
282> print pct22b fpct22b

                          PCT22B         FPCT22B

  1994Q1                .169665        .204717
  1994Q2                .166183        .184877
  1994Q3                .204994        .204051
  1994Q4                .170875        .203319
  1995Q1                .166954        .202790
  1995Q2                .169085        .186534
  1995Q3                .193728        .207026
  1995Q4                .188332        .206556
  1996Q1                .210016        .206129
  1996Q2                .218974        .186025
  1996Q3                .216439        .205065
  1996Q4                .320968        .204679
  1997Q1                .404116        .386545
  1997Q2                .442871        .446892
  1997Q3                .475875        .485934
  1997Q4                .496130        .503553
  1998Q1                .538607        .519793
  1998Q2                .534187        .519448
  1998Q3                .544456        .549309
  1998Q4                .557810        .562027
  1999Q1                .568919        .573618
  1999Q2                .577471        .597372
  1999Q3                .581635        .624274
  1999Q4                .590133        .629393
  2000Q1                .638768        .633841
  2000Q2                .631221        .633475
  2000Q3                .645964        .641301
  2000Q4                .652736        .644541
  2001Q1                .674294        .647356
  2001Q2                .655658        .635034
  2001Q3                .660617        .632720

283> print mape22b


  Constant MAPE22B =    .467404E-01

284> page
285> print pct22f fpct22f

                          PCT22F         FPCT22F

  1994Q1               .256100E-01    .166042E-01
  1994Q2               .292287E-01    .168980E-01
  1994Q3               .295685E-01    .227132E-01
  1994Q4               .310605E-01    .262729E-01
  1995Q1               .314701E-01    .305753E-01
  1995Q2               .342606E-01    .311283E-01
  1995Q3               .331028E-01    .416153E-01
  1995Q4               .410173E-01    .479765E-01
  1996Q1               .398029E-01    .556050E-01
  1996Q2               .561101E-01    .565411E-01
```

1996Q3	.554145E-01	.748212E-01
1996Q4	.113269	.857448E-01
1997Q1	.112039	.113911
1997Q2	.110255	.113580
1997Q3	.128477	.137753
1997Q4	.144727	.146353
1998Q1	.150180	.156259
1998Q2	.151081	.148705
1998Q3	.201113	.178632
1998Q4	.184056	.189136
1999Q1	.194926	.201152
1999Q2	.207750	.194218
1999Q3	.217828	.232274
1999Q4	.241602	.244817
2000Q1	.281791	.259014
2000Q2	.256920	.248138
2000Q3	.289275	.290138
2000Q4	.284085	.304361
2001Q1	.330321	.320302
2001Q2	.287818	.307060
2001Q3	.362300	.352728

```
286> print mape22f


  Constant MAPE22F =    .637195E-01

287> page
288> !
288> print pct24n_l fpct24n_l
```

	PCT24N_L	FPCT24N_L
1994Q1	.601811	.569031
1994Q2	.600278	.582916
1994Q3	.497403	.594793
1994Q4	.581434	.575563
1995Q1	.573620	.536827
1995Q2	.560460	.551469
1995Q3	.572707	.548822
1995Q4	.533082	.543295
1996Q1	.492695	.485107
1996Q2	.498443	.496946
1996Q3	.487088	.494382
1996Q4	.455095	.482038
1997Q1	.386840	.359689
1997Q2	.371417	.355516
1997Q3	.379612	.353931
1997Q4	.331335	.348184
1998Q1	.289762	.315060
1998Q2	.294298	.326059
1998Q3	.305015	.324798
1998Q4	.297596	.316145
1999Q1	.261633	.282125
1999Q2	.261770	.272601
1999Q3	.292685	.254831

1999Q4	.283842	.247293
2000Q1	.216465	.218905
2000Q2	.225369	.228918
2000Q3	.237211	.228984
2000Q4	.216790	.222780
2001Q1	.190980	.193555
2001Q2	.218324	.208911
2001Q3	.219857	.217095

```
289> print mape24n_l

  Constant MAPE24N_L =    .509811E-01

290> page
291> print pct24n_nl fpct24n_nl
```

	PCT24N_NL	FPCT24N_NL
1994Q1	.692667	.683588
1994Q2	.680784	.683918
1994Q3	.621778	.656440
1994Q4	.633294	.623607
1995Q1	.600503	.626765
1995Q2	.607959	.619248
1995Q3	.614177	.586849
1995Q4	.552780	.551305
1996Q1	.589430	.554396
1996Q2	.566404	.555206
1996Q3	.529296	.524782
1996Q4	.464021	.488363
1997Q1	.425119	.441108
1997Q2	.398006	.420397
1997Q3	.359230	.385922
1997Q4	.334848	.347440
1998Q1	.315710	.346007
1998Q2	.333310	.341739
1998Q3	.315365	.309814
1998Q4	.303864	.275741
1999Q1	.298370	.274387
1999Q2	.306732	.286766
1999Q3	.252297	.269342
1999Q4	.222324	.238244
2000Q1	.194912	.237391
2000Q2	.215562	.234699
2000Q3	.213052	.210460
2000Q4	.169845	.184315
2001Q1	.191687	.183398
2001Q2	.183320	.196244
2001Q3	.177942	.185237

```
292> print mape24n_nl

  Constant MAPE24N_NL =    .430396E-01
```

```
293> page
294> print pct24z fpct24z
```

	PCT24Z	FPCT24Z
1994Q1	.342016E-01	.343203E-01
1994Q2	.341875E-01	.335456E-01
1994Q3	.317404E-01	.304987E-01
1994Q4	.311564E-01	.317672E-01
1995Q1	.306011E-01	.308206E-01
1995Q2	.308525E-01	.296989E-01
1995Q3	.270816E-01	.293222E-01
1995Q4	.274536E-01	.279849E-01
1996Q1	.269820E-01	.266536E-01
1996Q2	.237058E-01	.260919E-01
1996Q3	.244101E-01	.255914E-01
1996Q4	.293413E-01	.250252E-01
1997Q1	.303025E-02	.460991E-02
1997Q2	0.00000	0.00000
1997Q3	.389940E-07	0.00000
1997Q4	0.00000	0.00000
1998Q1	0.00000	0.00000
1998Q2	0.00000	0.00000
1998Q3	0.00000	0.00000
1998Q4	0.00000	0.00000
1999Q1	0.00000	0.00000
1999Q2	0.00000	0.00000
1999Q3	0.00000	0.00000
1999Q4	0.00000	0.00000
2000Q1	0.00000	0.00000
2000Q2	0.00000	0.00000
2000Q3	0.00000	0.00000
2000Q4	0.00000	0.00000
2001Q1	0.00000	0.00000
2001Q2	0.00000	0.00000
2001Q3	0.00000	0.00000

```
295> print mape24z

  Constant MAPE24Z =    .466525E-01

296> page
297> print pct24b3 fpct24b3
```

	PCT24B3	FPCT24B3
1994Q1	.127834	.119006
1994Q2	.123853	.122239
1994Q3	.130800	.116348
1994Q4	.129012	.128118
1995Q1	.118646	.130083
1995Q2	.121788	.131833
1995Q3	.131730	.137502
1995Q4	.141681	.138319
1996Q1	.150571	.161371

1996Q2	.144387	.165572
1996Q3	.167204	.171675
1996Q4	.216397	.179123
1997Q1	.380014	.389918
1997Q2	.438416	.451735
1997Q3	.439236	.456048
1997Q4	.470934	.456840
1998Q1	.463404	.452935
1998Q2	.474726	.458377
1998Q3	.470483	.462265
1998Q4	.477726	.465082
1999Q1	.460019	.460833
1999Q2	.483367	.478493
1999Q3	.477324	.492120
1999Q4	.485993	.493990
2000Q1	.475119	.484248
2000Q2	.505210	.492221
2000Q3	.501494	.495063
2000Q4	.513189	.495795
2001Q1	.454604	.485311
2001Q2	.494813	.493401
2001Q3	.488674	.492054

```
298> print mape24b3


  Constant MAPE24B3 =    .320739E-01

299> page
300> print pct24b5 fpct24b5
```

	PCT24B5	FPCT24B5
1994Q1	.236154	.277643
1994Q2	.241681	.261299
1994Q3	.340057	.258361
1994Q4	.258397	.264551
1995Q1	.277132	.302270
1995Q2	.286899	.286998
1995Q3	.268481	.284354
1995Q4	.297783	.290401
1996Q1	.329752	.326868
1996Q2	.333465	.311390
1996Q3	.321297	.308352
1996Q4	.299167	.313814
1997Q1	.230115	.245783
1997Q2	.190167	.192749
1997Q3	.181152	.190021
1997Q4	.197731	.194977
1998Q1	.246834	.232004
1998Q2	.230976	.215564
1998Q3	.224503	.212936
1998Q4	.224678	.218773
1999Q1	.278348	.257042
1999Q2	.254863	.248907
1999Q3	.229991	.253049
1999Q4	.230165	.258718

2000Q1	.308416	.296847
2000Q2	.269421	.278862
2000Q3	.261295	.275953
2000Q4	.270021	.281425
2001Q1	.354417	.321134
2001Q2	.286864	.297688
2001Q3	.291469	.290852

```
301> print mape24b5


  Constant MAPE24B5 =    .603820E-01

302> page
303> print pct24f fpct24f
```

	PCT24F	FPCT24F
1994Q1	.307333	.316412
1994Q2	.319216	.316082
1994Q3	.378222	.343560
1994Q4	.366706	.376393
1995Q1	.399497	.373235
1995Q2	.392041	.380752
1995Q3	.385823	.413151
1995Q4	.447220	.448695
1996Q1	.410570	.445604
1996Q2	.433596	.444794
1996Q3	.470704	.475218
1996Q4	.535979	.511637
1997Q1	.574881	.558892
1997Q2	.601994	.579603
1997Q3	.640770	.614078
1997Q4	.665152	.652560
1998Q1	.684290	.653993
1998Q2	.666690	.658261
1998Q3	.684635	.690186
1998Q4	.696136	.724259
1999Q1	.701630	.725613
1999Q2	.693268	.713234
1999Q3	.747703	.730658
1999Q4	.777676	.761756
2000Q1	.805088	.762609
2000Q2	.784438	.765301
2000Q3	.786948	.789540
2000Q4	.830155	.815685
2001Q1	.808313	.816602
2001Q2	.816680	.803756
2001Q3	.822058	.814763

```
304> print mape24f


  Constant MAPE24F =    .285568E-01

305> page
306> !
```

```
306> use 1976q4 2016q1
307> a22z = az1*(1-mc96)
308> a24z = az3*(1-mc96)
309> a22b = ab1+ab1_m*mc96
310> a24b3 = ab3 + ab3_m*mc96
311> a24b5 = ab5
312> a22f = af1
313> a24f = af3
314> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
315> mu: = sig:*ln((a:/pct:)-1) + d:
316> enddot


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 121 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 9 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 116 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 123 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 4 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 122 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
```

```
    Occurs 116 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 105 times.


  *** WARNING 190: Transformation at line 315.
  *** Divide by zero detected.
  *** Result set to zero.
      Occurs 123 times.

  *** WARNING 191: Transformation at line 315.
  *** Tried to take log of zero or negative number.
  *** Result set to zero.
      Occurs 4 times.


317> !
317> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
318> napct = 1 / (1 + exp(-(d:-mu:)/sig:))
319> zpct = 1 / (1 + exp(mu:/sig:))
320> gzpct = (napct-zpct)/napct
321> lzpct = 1 - gzpct
322> totbar = d: + sig:*log(1 - napct)/napct
323> lzbar = sig:*log(1 - zpct)/zpct
324> u: = (totbar - lzbar*lzpct)
325> enddot
326> use 1976q4 2001q3
327> vol3n_ncr = vol22n_1+vol22n_nl+vol22z+vol22b+vol22f+ ...
327> vol24n_1+vol24n_nl+vol24z+vol24b3+vol24b5+vol24f
328> vol3n = exp(bgvol3n)*n22_plus*bdays
329> dot '22z' '22b' '22f' '24z' '24b3' '24b5' '24f'
330> pct: = vol: / vol3n_ncr
331> ppct: = vol: / vol3n
332> enddot
333> u3n_ncr = u22z*pct22z+u22b*pct22b+u22f*pct22f+u24z*pct24z+u24b3*pct24b3+ ...
333> u24b5*pct24b5+u24f*pct24f
334> u3n = u22z*ppct22z+u22b*ppct22b+u22f*ppct22f+u24z*ppct24z+u24b3*ppct24b3+ ...
334> u24b5*ppct24b5+u24f*ppct24f
335> revise px3n_ncru = ln(exp(px3n_ncr)+u3n_ncr)
336> revise px3nu = ln(exp(px3n)+u3n)
337> replace u3n_ncr u3n px3n_ncru px3nu
338> !
338> use 1997q1 2016q1
339> mu22b =
mu_b10+mu_b196*d96+mu_b1f*fall+mu_b1w*winter+mu_b1s*spring+mu_b1t*t+mu_b1tm*t_mc96+m
u_b1mc*mc96
340> mu22z = mu_z10+mu_z1f*fall+mu_z1w*winter+mu_z1s*spring+mu_z1t*t
341> mu24b3 =
mu_b30+mu_b396*d96+mu_b3f*fall+mu_b3w*winter+mu_b3s*spring+mu_b3t*t+mu_b3tm*t_mc96+m
u_b3mc*mc96
342> mu24b5 =
mu_b50+mu_b596*d96+mu_b5f*fall+mu_b5w*winter+mu_b5s*spring+mu_b5t*t+mu_b5tm*t_mc96+m
u_b5mc*mc96
343> mu24z = mu_z30+mu_z3f*fall+mu_z3w*winter+mu_z3s*spring+mu_z3t*t
```

```
344> mu22f =
mu_f10+mu_f1f*fall+mu_f1w*winter+mu_f1s*spring+mu_f1t*t+mu_f1tm*t_mc96-mu_f1mc*mc96
345> mu24f =
mu_f30+mu_f3f*fall+mu_f3w*winter+mu_f3s*spring+mu_f3t*t+mu_f3tm*t_mc96+mu_f3mc*mc96
346> !
346> punchdif('mu3n_nc') a22b a22f a24b3 a24b5 a24f ...
346> mu22b mu22f mu24b3 mu24b5 mu24f ...
346> sig22b sig22f sig24b3 sig24b5 sig24f


  *** File created ( 2): mu3n_nc.dif
  *** File closed  ( 2): mu3n_nc.dif

347> !
```

Parcel Post

```
Soritec Log File
Monday, August 27, 2001 16:01:31

2> execute paf_25.sac
2> access rcf_r2001


  *** File opened  ( 1): rcf_r2001.sdb

3> use 1999q3 2016q1
4> time t
5> dummy q1 2000q1 4
6> dummy q2 2000q2 4
7> dummy q3 1999q3 4
8> dummy r2000 2001q2 1
9> !
9> use 2001q2
10> revise r2000 = 38/66
11> use 2005q1
12> t_inc = 1
13> on dynamic
14> use 2005q2 2006q1
15> revise t_inc = t_inc{-1} - .05
16> use 2006q2 2016q1
17> revise t_inc = t_inc{-1} - .075
18> use 2005q1 2016q1
19> t_inc = t_inc*(t_inc>=0)
20> revise t = t{-1} + t_inc
21> !
21> use 1999q3 2001q3
22> vol25 = vol26 + vol27 + vol25_db + vol25_ds + vol25_dd
23> vol25_nd = vol26 + vol27
24> vol25_dsd = vol25_ds + vol25_dd
25> vol25_de = vol25_db + vol25_dsd
26> dot 26 27 '25_db' '25_ds' '25_dd' '25_nd' '25_dsd' '25_de'
27> pct: = vol: / vol25
28> enddot
29> ppct26 = mean(pct26) / (mean(pct26) + mean(pct27))
30> ppct27 = mean(pct27) / (mean(pct26) + mean(pct27))
31> !
31> use 1999q3 2001q3
32> equation dsd pct25_dsd = asd /
(1+exp(bsd0+bsd_1*q1+bsd_2*q2+bsd_3*q3+bsd_t*t+bsd2000*r2000)) + ...
32> 1000000*((1-asd) - abs(1-asd))
32> parameter asd .5 bsd0 2.07 bsd_1 -.447 bsd_2 0 bsd_3 0 bsd_t -.209 bsd2000 0
33> !constant bsd_2 = 0
33> !constant bsd_3 = 0
33> equation ds pct25_ds = as /
(1+exp(bs0+bs_1*q1+bs_2*q2+bs_3*q3+bs_t*t+bs2000*r2000)) + ...
33> 1000000*((1-as) - abs(1-as))
33> parameter as = asd * .1066
34> parameter bs0 = bsd0
35> parameter bs_1 = bsd_1
36> parameter bs_2 = bsd_2
37> parameter bs_3 = bsd_3
38> parameter bs_t = bsd_t
```

```
39> parameter bs2000 = bsd2000
40> !
40> equation dd pct25_dd = ad /
(1+exp(bd0+bd_1*q1+bd_2*q2+bd_3*q3+bd_t*t+bd2000*r2000)) + ...
40> 1000000*((1-ad) - abs(1-ad))
40> parameter ad = asd * .8934
41> parameter bd0 = bsd0
42> parameter bd_1 = bsd_1
43> parameter bd_2 = bsd_2
44> parameter bd_3 = bsd_3
45> parameter bd_t = bsd_t
46> parameter bd2000 = bsd2000
47> !
47> equation de pct25_de = ade /
(1+exp(bde0+bde_1*q1+bde_2*q2+bde_3*q3+bde_t*t+bde2000*r2000)) + ...
47> 1000000*((1-ade) - abs(1-ade))
47> parameter ade .9 bde0 -1.225 bde_1 -.2247 bde_2 .2225 bde_3 -.1178 bde_t -.07246
bde2000 0
48> !
48> regress (maxit=500) dsd

           Nonlinear Least Squares

  Convergence achieved after 11 iterations.

           Equation DSD

           Dependent variable is PCT25_DSD

     Variable          Coefficient      Std Err        T-stat      Signf

  ASD                    .252118      .293988E-01    8.57580       .013
  BSD0                  1.07945       .328149        3.28950       .081
  BSD_1                 -.685489      .327860       -2.09080       .172
  BSD_2                  .515297      .349082        1.47615       .278
  BSD_3                  .265283      .281422         .942653      .445
  BSD_T                 -.273619      .737056E-01   -3.71233       .066
  BSD2000               -2.14559      1.65799       -1.29410       .325


        R-Squared=  .98357     No. obs=     9
        R-Bar-Squared (adj)        =   .93426
        Durbin-Watson (   0 gaps) =  3.123065
        Sum of squared residuals =    .515030E-03
        Std. error of regression =    .160473E-01
        Sum of residuals =           -.898068E-03
        Mean of dependent variable =  .151066
        Log of likelihood function =  31.1878

49> regress (maxit=500) ds

           Nonlinear Least Squares
```

Convergence achieved after 7 iterations.

Equation DS

Dependent variable is PCT25_DS

Variable	Coefficient	Std Err	T-stat	Signf
AS	.320437E-01	.123664E-01	2.59119	.122
BS0	1.28084	.442368	2.89541	.101
BS_1	-.745904	.481297	-1.54978	.261
BS_2	-.319898E-01	.289765	-.110399	.922
BS_3	.387109	.307608	1.25845	.335
BS_T	-.241033	.118565	-2.03291	.179
BS2000	1.47453	.770057	1.91483	.196

R-Squared= .96578 No. obs= 9
R-Bar-Squared (adj) = .86310
Durbin-Watson (0 gaps) = 2.983576
Sum of squared residuals = .860132E-05
Std. error of regression = .207380E-02
Sum of residuals = -.163760E-03
Mean of dependent variable = .138657E-01
Log of likelihood function = 49.6032

50> regress (maxit=500) dd

Nonlinear Least Squares

Convergence achieved after 10 iterations.

Equation DD

Dependent variable is PCT25_DD

Variable	Coefficient	Std Err	T-stat	Signf
AD	.243842	.273111E-01	8.92828	.012
BD0	1.14812	.304135	3.77504	.064
BD_1	-.591413	.274972	-2.15081	.164
BD_2	.519782	.326872	1.59017	.253
BD_3	.221623	.257112	.861970	.480
BD_T	-.247011	.615590E-01	-4.01258	.057
BD2000	-2.22101	1.33807	-1.65986	.239

R-Squared= .98626 No. obs= 9
R-Bar-Squared (adj) = .94503
Durbin-Watson (0 gaps) = 2.899378
Sum of squared residuals = .399441E-03

```
        Std. error of regression =    .141322E-01
        Sum of residuals =           -.111097E-02
        Mean of dependent variable =  .137200
        Log of likelihood function =  32.3316

51> regress (maxit=500) de


           Nonlinear Least Squares


  No improvement in fit after 30 iterations.


           Equation DE

           Dependent variable is PCT25_DE

     Variable          Coefficient      Std Err        T-stat      Signf

  ADE                    1.00000       .981309        1.01905       .415
  BDE0                  -.751140      2.95080        -.254555       .823
  BDE_1                 -.118547       .365205       -.324605       .776
  BDE_2                  .698826E-02   .991223E-01    .705014E-01   .950
  BDE_3                 -.793921E-01   .244327       -.324942       .776
  BDE_T                 -.672863E-01   .196090       -.343140       .764
  BDE2000                .686136      1.88890         .363247       .751


        R-Squared=  .95501     No. obs=     9
        R-Bar-Squared (adj)        =   .82004
        Durbin-Watson (   0 gaps) =  1.152018
        Sum of squared residuals =    .477952E-03
        Std. error of regression =    .154588E-01
        Sum of residuals =            .389014E-01
        Mean of dependent variable =  .737676
        Log of likelihood function =  31.5241

52> !
52> fpct25_ds = as / (1+exp(bs0+bs_1*q1+bs_2*q2+bs_3*q3+bs_t*t+bs2000*r2000))
53> fpct25_dd = ad / (1+exp(bd0+bd_1*q1+bd_2*q2+bd_3*q3+bd_t*t+bd2000*r2000))
54> fpct25_de = ade / (1+exp(bde0+bde_1*q1+bde_2*q2+bde_3*q3+bde_t*t+bde2000*r2000))
55> fpct25_db = fpct25_de - fpct25_ds - fpct25_dd
56> fpct25_nd = 1 - fpct25_db - fpct25_ds - fpct25_dd
57> dot '25_nd' '25_db' '25_ds' '25_dd'
58> ape: = sum(abs(fpct:/pct:-1)*pct:)
59> denom: = sum(pct:)
60> set mape: = ape: / denom:
61> enddot
62> p pct25_nd fpct25_nd mape25_nd


  Constant MAPE25_ND =   .228408E-01

                                 FPCT25_N
                       PCT25_ND  D
```

1999Q3	.281906	.289499
1999Q4	.288158	.291995
2000Q1	.254086	.255109
2000Q2	.273847	.266335
2000Q3	.231076	.237404
2000Q4	.236792	.239603
2001Q1	.197638	.207396
2001Q2	.277353	.291648
2001Q3	.320059	.320827

63> p pct25_db fpct25_db mape25_db

Constant MAPE25_DB = .142843E-01

	PCT25_DB	FPCT25_DB
1999Q3	.663583	.644434
1999Q4	.606352	.614652
2000Q1	.597276	.594241
2000Q2	.631374	.637907
2000Q3	.633708	.636494
2000Q4	.614918	.600963
2001Q1	.589060	.582062
2001Q2	.504626	.491252
2001Q3	.438598	.437316

64> p pct25_ds fpct25_ds mape25_ds

Constant MAPE25_DS = .647078E-01

	PCT25_DS	FPCT25_DS
1999Q3	.531854E-02	.620303E-02
1999Q4	.113514E-01	.994280E-02
2000Q1	.173084E-01	.175248E-01
2000Q2	.127003E-01	.137563E-01
2000Q3	.135900E-01	.123793E-01
2000Q4	.161294E-01	.173435E-01
2001Q1	.246449E-01	.243510E-01
2001Q2	.157091E-01	.146668E-01
2001Q3	.803949E-02	.878787E-02

65> p pct25_dd fpct25_dd mape25_dd

Constant MAPE25_DD = .355747E-01

	PCT25_DD	FPCT25_DD
1999Q3	.491928E-01	.598642E-01
1999Q4	.941389E-01	.834100E-01
2000Q1	.131329	.133126
2000Q2	.820788E-01	.820021E-01

2000Q3	.121625	.113722
2000Q4	.132161	.142091
2001Q1	.188657	.186191
2001Q2	.202312	.202434
2001Q3	.233303	.233069

```
66> !
66> use 2000q1 2016q1
67> revise fpct25_ds = as / (1+exp(bs0+bs_1*q1+bs_t*t))
68> revise fpct25_dd = ad / (1+exp(bd0+bd_1*q1+bd_t*t))
69> revise fpct25_de = ade / (1+exp(bde0+bde_1*q1+bde_t*t))
70> revise fpct25_db = fpct25_de - fpct25_ds - fpct25_dd
71> revise fpct25_nd = 1 - fpct25_db - fpct25_ds - fpct25_dd
72> fpct26 = fpct25_nd*ppct26
73> fpct27 = fpct25_nd*ppct27
74> !
74> dot '25_de' '25_ds' '25_dd' '25_db' 26 27
75> use 2000q4 2001q3
76> base: = sum(vol:) / sum(vol25)
77> fvol: = fpct:*vol25
78> enddot
79> dot '25_de' '25_ds' '25_dd'
80> use 2000q4 2001q3
81> fbase: = sum(fvol:) / sum(vol25)
82> set adj: = base: / fbase:
83> use 2001q4 2016q1
84> revise fpct: = fpct: * adj:
85> enddot
86> use 2001q4 2016q1
87> revise fpct25_db = fpct25_de - fpct25_ds - fpct25_dd
88> revise fpct26 = ppct26*(1-fpct25_de)
89> revise fpct27 = ppct27*(1-fpct25_de)
90> !
90> dot '25_de' '25_ds' '25_dd' '25_db' 26 27
91> mult: = fpct: / base:
92> enddot
93> use 2001q4 2016q1
94> p mult26 mult27 mult25_db mult25_ds mult25_dd
```

	MULT26	MULT27	MULT25_DB	MULT25_DS
2001Q4	.941629	.879544	.989655	1.13278
2002Q1	.838067	.782810	.977650	1.33775
2002Q2	.865407	.808348	.986039	1.24952
2002Q3	.829708	.775002	.987582	1.29569
2002Q4	.795586	.743130	.991004	1.33444
2003Q1	.709270	.662505	1.00351	1.43307
2003Q2	.731944	.683685	1.00220	1.39289
2003Q3	.702355	.656046	1.00935	1.41432
2003Q4	.674199	.629747	1.01717	1.43162
2004Q1	.603533	.563739	1.03889	1.47309
2004Q2	.622020	.581008	1.03394	1.45662
2004Q3	.597905	.558483	1.04255	1.46548
2004Q4	.575044	.537129	1.05114	1.47251
2005Q1	.518029	.483874	1.07343	1.48895
2005Q2	.533893	.498692	1.06749	1.48229

2005Q3	.516350	.482305	1.07475	1.48550
2005Q4	.500578	.467573	1.08141	1.48796
2006Q1	.457430	.427270	1.09988	1.49460
2006Q2	.474128	.442867	1.09281	1.49131
2006Q3	.463543	.432979	1.09745	1.49240
2006Q4	.454506	.424539	1.10143	1.49324
2007Q1	.421784	.393974	1.11592	1.49651
2007Q2	.440594	.411544	1.10762	1.49437
2007Q3	.435524	.406808	1.10989	1.49473
2007Q4	.431614	.403156	1.11164	1.49500
2008Q1	.405503	.378767	1.12333	1.49713
2008Q2	.427074	.398916	1.11368	1.49529
2008Q3	.426384	.398270	1.11399	1.49533
2008Q4	.426384	.398270	1.11399	1.49533
2009Q1	.403320	.376728	1.12433	1.49720
2009Q2	.426384	.398270	1.11399	1.49533
2009Q3	.426384	.398270	1.11399	1.49533
2009Q4	.426384	.398270	1.11399	1.49533
2010Q1	.403320	.376728	1.12433	1.49720
2010Q2	.426384	.398270	1.11399	1.49533
2010Q3	.426384	.398270	1.11399	1.49533
2010Q4	.426384	.398270	1.11399	1.49533
2011Q1	.403320	.376728	1.12433	1.49720
2011Q2	.426384	.398270	1.11399	1.49533
2011Q3	.426384	.398270	1.11399	1.49533
2011Q4	.426384	.398270	1.11399	1.49533
2012Q1	.403320	.376728	1.12433	1.49720
2012Q2	.426384	.398270	1.11399	1.49533
2012Q3	.426384	.398270	1.11399	1.49533
2012Q4	.426384	.398270	1.11399	1.49533
2013Q1	.403320	.376728	1.12433	1.49720
2013Q2	.426384	.398270	1.11399	1.49533
2013Q3	.426384	.398270	1.11399	1.49533
2013Q4	.426384	.398270	1.11399	1.49533
2014Q1	.403320	.376728	1.12433	1.49720
2014Q2	.426384	.398270	1.11399	1.49533
2014Q3	.426384	.398270	1.11399	1.49533
2014Q4	.426384	.398270	1.11399	1.49533
2015Q1	.403320	.376728	1.12433	1.49720
2015Q2	.426384	.398270	1.11399	1.49533
2015Q3	.426384	.398270	1.11399	1.49533
2015Q4	.426384	.398270	1.11399	1.49533
2016Q1	.403320	.376728	1.12433	1.49720

	MULT25_DD
2001Q4	1.13181
2002Q1	1.28539
2002Q2	1.23299
2002Q3	1.27194
2002Q4	1.30412
2003Q1	1.37457
2003Q2	1.35170
2003Q3	1.36881
2003Q4	1.38247
2004Q1	1.41102
2004Q2	1.40195

```
2004Q3              1.40875
2004Q4              1.41411
2005Q1              1.42508
2005Q2              1.42148
2005Q3              1.42387
2005Q4              1.42570
2006Q1              1.42998
2006Q2              1.42816
2006Q3              1.42896
2006Q4              1.42956
2007Q1              1.43160
2007Q2              1.43038
2007Q3              1.43064
2007Q4              1.43083
2008Q1              1.43212
2008Q2              1.43104
2008Q3              1.43107
2008Q4              1.43107
2009Q1              1.43218
2009Q2              1.43107
2009Q3              1.43107
2009Q4              1.43107
2010Q1              1.43218
2010Q2              1.43107
2010Q3              1.43107
2010Q4              1.43107
2011Q1              1.43218
2011Q2              1.43107
2011Q3              1.43107
2011Q4              1.43107
2012Q1              1.43218
2012Q2              1.43107
2012Q3              1.43107
2012Q4              1.43107
2013Q1              1.43218
2013Q2              1.43107
2013Q3              1.43107
2013Q4              1.43107
2014Q1              1.43218
2014Q2              1.43107
2014Q3              1.43107
2014Q4              1.43107
2015Q1              1.43218
2015Q2              1.43107
2015Q3              1.43107
2015Q4              1.43107
2016Q1              1.43218

95> punchdif('pct25s') mult26 mult27 mult25_db mult25_ds mult25_dd

  *** File deleted ( 2): pct25s.dif
  *** File created ( 2): pct25s.dif
  *** File closed  ( 2): pct25s.dif
```

V. Econometric Demand Equations

The files used to model the econometric demand equations are printed out below for convenience.

DEQN.SAC

```
maxarg 500
maxsym 5000
width 100
!
! ***  PRAIS-WINSTON, w/ ITERATIONS; SIMULTANEOUS B,RHO,K
! ***  THE OUTFILE IS THE NAME OF THE .LST FILE TO WHICH OUTPUT IS PRINTED
!
concat outfile 'out_r2001'
execute progguts.sac
!
! ***  THE WORKSPACE ONLY NEEDS TO BE OPENED ONCE
!
access rcf_r2001
dbgroup everything
on group
copy everything
close
dot everything
   concat q: _:
enddot
!
! *** THIS GROUP WILL EVENTUALLY HAVE TO BE EXTENDED AND PERHAPS MOVED
!
group num 1 2 3 4 5 6 7 8 9 10 ...
          11 12 13 14 15 16 17 18 19 20 ...
          21 22 23 24 25 26 27 28 29 30 ...
          31 32 33 34 35 36 37 38 39 40 ...
          41 42 43 44 45 46 47 48 49 50
group seasonals ...
           sep1_15 sep16_30 oct nov_dec10 dec11_12 dec13_15 dec16_17 dec18_19 ...
           dec20_21 dec22_23 dec24 dec25_jan1 jan_feb march apr1_15 ...
           apr16_may june
set py = 0
set var_y = 0
!
off group
date ols_stop 2001q3
execute vol5_7.sac
execute vol1_3ws.sac
execute vol01sp.sac
execute vol3r_cr.sac
execute vol3r_ncr.sac
execute vol4.sac
execute vol2r.sac
execute vol11.sac
execute vol12_13.sac
execute vol3n.sac
execute vol25.sac
execute vol28.sac
execute vol29.sac
execute vol10.sac
execute vol31.sac
execute vol33.sac
execute vol35.sac
execute vol36.sac
execute vol37.sac
```

```
execute vol38.sac
execute vol_rr.sac
execute vol39.sac
!
access rcf_r2001
replace bvars01sp bvars1_3ws bvars4 bvars5_7 bvars10 bvars11 bvars12_13 bvars2r ...
        bvars3r_ncr bvars3r_cr bvars3n bvars25 bvars28 bvars29_30 bvars31 bvars33
...
        bvars35 bvars36 bvars37 bvars38 bvars39 bvars_rr
```

PROGGUTS.SAC

```
!
! ***  MACRO NEWREGS REPLACES BIG_DADDY, THE SIGNIFICANT CALCULATIONS ARE
! ***       PERFORMED IN SUB-MACROS REGPROC, BCALC, & K2ITER
!
procedure newregs (bvars vmat)
!
! ***  GAP IS THE CONVERGENCE CRITERION FOR K2, RHO ITERATIONS
! ***   GAP is difference between K2s, GAP**2 is criterion for RHOs
! ***  MAXITER = MAX. # OF ITERATIONS K2ITER & RHOITER WILL GO THROUGH
!
set GAP = .002
set MAXITER = 25
set ar_correction = 0
!
on group
use ols_start ols_stop
recover nobs obs
!
! ***  FIRST, DETERMINE THE NAME OF THE DEPENDENT VARIABLE & THE SAMPLE PERIOD
! ***                      FOR USE IN THE TITLE REPORT
!
group volumes bgvol01sp bgvol1_3ws bgvol4 bgvol5_7 ...
              bgvol10 bgvol11 bgvol12 bgvol13 bgvol12_13 bgvol2r bgvol3r_cr
bgvol3r_ncr bgvol3n ...
              bgvol25 bgvol28 bgvol29 bgvol30 bgvol29_30 bgvol31 ...
              bgvol33 bgvol35 bgvol36 bgvol37 bgvol38 bgvol39 bgvol_rr ...
              bgvol28_29 bgvol28_30
group george 'Single-Piece First-Class Letters' 'Workshared First-Class Letters' ...
             'Stamped Cards' 'Private First-Class Cards' ...
             'Mailgrams' 'Periodical Within County' 'Periodical Nonprofit' ...
             'Periodical Classroom' 'Per. NP & Class' 'Periodical Regular Rate'
'Standard ECR' ...
             'Standard Regular' 'Standard Bulk Nonprofit' ...
             'Parcel Post' 'Bound Printed Matter' 'Standard Special Rate' ...
             'Standard Library Rate' 'Media Mail (incl. Library)' 'Postal Penalty
Mail' ...
             'Free-for-the-Blind' 'Registry' ...
             'Insurance' 'Certified Mail' 'Cash-on-Delivery' 'Money Orders' ...
             'Return Receipts' 'BPM & Spec.' 'Non-PP Std B'
set GST = 0
set i = 0
on group
do
  set i = i+1
  use ols_stop
   dot volumes[i]
      set xx1 = :
   enddot
   dot depvar
      set xx2 = :
   enddot
  if (xx2 .EQ. xx1)
    then
      do
        concat volname george[i]
```

```
        set GST = 1
      end
until (GST .EQ. 1)
on group
concat datel ols_start ' TO ' ols_stop
!
! ***  INITIALIZE K2, AND THE RHO-COEFFICIENTS; THESE WILL BE CALCULATED BELOW
!
set k2 = 0
set rho1 = 0
set rho2 = 0
set RHO4 = 0
set se1 = 0
set se2 = 0
set se4 = 0
!
! ***  SET UP P-MATRIX FOR AUTOCORRELATION CORRECTION
!
set n1 = nobs - 1
set n2 = nobs - 2
set n4 = nobs - 4
p_nought = identity(nobs)
off group
length seas seasonals
length nonpx nonpxvars
length px pxvars
set px = px*5
set npd = px / 5
set k = seas + nonpx + px
set Tmk = nobs - k
!
length g d
length nstoch little_r
set g = g*fixed
set nstoch = nstoch*stoch
!
! ***  SET UP PRICE VARIABLES, MAKE Y-VECTOR, X-MATRIX
!
on group
group pvars
 dot pxvars
    group pvars pvars :
     do lg = 1 to 4
       set nlg = -1*lg
       group pvars pvars :{nlg}
     end
 enddot
!
use ols_start ols_stop
mmake yvec depvar
mmake xmat seasonals nonpxvars pvars
!
! ***  SET UP SHILLER RESTRICTION ON OWN-PRICE ELASTICITY
!
matrix s (3,5) 1 -2 1 2*0 ...
               0 1 -2 1 0 ...
               0 0 1 -2 1
set pre_pxvars = seas + nonpx
```

```
set pre_svars = k - 5
matrix pre_s (3,pre_svars) pre_svars*0 pre_svars*0 pre_svars*0
set numpx = px / 5
shi = align(pre_s,s)
!
! ***  SET UP SHILLER RESTRICTIONS IF THERE IS MORE THAN ONE
!
if (npd>1)
  then
 dot num[2 to npd]
   set pre_svars: = pre_pxvars + 5*(:-2)
   set post_svars: = k - (pre_svars: + 5)
   matrix pre_s: (3,pre_svars:) pre_svars:*0 pre_svars:*0 pre_svars:*0
   matrix post_s: (3,post_svars:) post_svars:*0 post_svars:*0 post_svars:*0
   shi: = align(pre_s:,s,post_s:)
   set k2_: = 0
 enddot
!
! ***  CALL ZCALC IF NECESSARY
!
on group
use ols_start ols_stop
z = 0
if (ZVAR = 1)
  then
call zcalc
!
! ***  CALL REGPROC FOR THE FIRST TIME (USE TO DETERMINE RHO-VALUES)
!
call regproc
!
! ***  ITERATE OVER RHO-COEFFICIENTS
!
set rhostat=0
set rhoiter=0
!
do
set orho1 = rho1
set orho2 = rho2
set orho4 = rho4
!
call regproc
!
use ols_start ols_stop
resids = yvec - xmat*bhat
inspect resids 4
recover pac pacor pacse pacorse
  set pac_tstat1 = abs(pac[2]/pacse[2])
  set pac_tstat2 = abs(pac[3]/pacse[3])
  set pac_tstat4 = abs(pac[5] / pacse[5])
!
set res1 = 0
set res2 = 0
set res4 = 0
if (pac_tstat1>2.576) set res1 = 1
if (pac_tstat2>2.576) set res2 = 1
if (pac_tstat4>2.576) set res4 = 1
if (res4 = 1) set ar_correction = 4
```

```
if (res2 = 1) set ar_correction = max(ar_correction,2)
if (res1 = 1) set ar_correction = max(ar_correction,1)
!
 use ols_start ols_stop
 useadd ar_correction 0
!
if (res4=1 .AND. res2=1 .AND. res1=1)
  then
do
 fastreg(origin) resids resids{-1} resids{-2} resids{-4}
  set rho1 = ^coef(1)
  set se1 = ^se(1)
  set rho2 = ^coef(2)
  set se2 = ^se(2)
  set rho4 = ^coef(3)
  set se4 = ^se(3)
end
  else
do
 if (res4=1 .AND. res2=1)
  then
do
 fastreg(origin) resids resids{-2} resids{-4}
  set rho1 = 0
  set rho2 = ^coef(1)
  set se2 = ^se(1)
  set rho4 = ^coef(2)
  set se4 = ^se(2)
end
  else
do
if (res4=1 .AND. res1=1)
  then
do
 fastreg(origin) resids resids{-1} resids{-4}
  set rho1 = ^coef(1)
  set se1 = ^se(1)
  set rho2 = 0
  set rho4 = ^coef(2)
  set se4 = ^se(2)
end
  else
do
if (res4=1)
  then
do
 fastreg(origin) resids resids{-4}
  set rho1 = 0
  set rho2 = 0
  set rho4 = 0
  set rho4 = ^coef(1)
  set se4 = ^se(1)
end
  else
do
if (res2=1 .AND. res1=1)
  then
do
```

```
 fastreg(origin) resids resids{-1 to -2}
  set rho1 = ^coef(1)
  set se1 = ^se(1)
  set rho2 = ^coef(2)
  set se2 = ^se(2)
  set rho4 = 0
end
  else
do
if (res2=1)
  then
do
 fastreg(origin) resids resids{-2}
  set rho1 = 0
  set rho2 = ^coef(1)
  set se2 = ^se(1)
  set rho4 = 0
end
  else
do
if (res1=1)
  then
do
 fastreg(origin) resids resids{-1}
  set rho1 = ^coef(1)
  set se1 = ^se(1)
  set rho2 = 0
  set rho4 = 0
end
end
end
end
end
end
end
set NUMAR = (rho1<>0)+(rho2<>0)+(rho4<>0)
!
SET RHOGAP = NUMAR*(GAP**2)
SET RHOSTAT = (rho1-orho1)**2+(rho2-orho2)**2+(rho4-orho4)**2
set rhoiter = rhoiter + 1
set rhostat = (rhostat<=rhogap)
if (rhoiter>maxiter) set rhostat=1
until (rhostat=1)
!
! ***  DEFINE SX0-SX3 AS PRICE COEFFS., THEN DEFINE TEST STATISTICS
!
use 1 k
bvars = bhat
use pre_svars pre_svars
useadd 1 1
set sx0 = bvars
useadd 1 1
set sx1 = bvars
useadd 1 1
set sx2 = bvars
useadd 1 1
set sx3 = bvars
useadd 1 1
```

```
set sx4 = bvars
!
! ***  TESTSTAT1 = 1 IF ALL THE PRICE COEFFS. HAVE THE SAME SIGN
!
if (sx0>0)
  then
set teststat1 = (sx1>=0)*(sx2>=0)*(sx3>=0)*(sx4>=0)
  else
set teststat1 = (sx1<=0)*(sx2<=0)*(sx3<=0)*(sx4<=0)
set teststat = teststat1
!
if (npd>1)
  then
dot num[2 to npd]
 use pre_svars: pre_svars:
 useadd 1 1
  set sx0: = bvars
 useadd 1 1
  set sx1: = bvars
 useadd 1 1
  set sx2: = bvars
 useadd 1 1
  set sx3: = bvars
 useadd 1 1
  set sx4: = bvars
!
 if (sx0:>0)
  then
      set teststat1: = (sx1:>=0)*(sx2:>=0)*(sx3:>=0)*(sx4:>=0)
  else
      set teststat1: = (sx1:<=0)*(sx2:<=0)*(sx3:<=0)*(sx4:<=0)
 set teststat_: = teststat1:
enddot
!
! ***  NOW COMES ITERATION TO DETERMINE OPTIMAL VALUE OF K2
! ***  IN THIS VERSION, WE RE-ESTIMATE RHO1, RHO2, RHO4 FOR EACH VALUE OF K2
!
set iter = 0
set maxk2 = 0
set test1 = 0
if (npd>1)
  then
dot num[2 to npd]
  set maxk2_: = 0
  set test1: = 0
enddot
!
! ***  BEGIN ITERATION OVER K2 VALUES
!
do
!
! ***  CALCULATE VALUES OF RHO1, RHO2, RHO4 FOR EACH ITERATION OVER K2
!
! ***  ITERATE OVER RHO-COEFFICIENTS
!
set rhostat=0
set rhoiter=0
!
```

```
do
set orho1 = rho1
set orho2 = rho2
set orho4 = rho4
!
call regproc
!
use ols_start ols_stop
resids = yvec - xmat*bhat
inspect resids 4
recover pac pacor pacse pacorse
  set pac_tstat1 = abs(pac[2]/pacse[2])
  set pac_tstat2 = abs(pac[3]/pacse[3])
  set pac_tstat4 = abs(pac[5] / pacse[5])
!
set res1 = 0
set res2 = 0
set res4 = 0
if (pac_tstat1>2.576) set res1 = 1
if (pac_tstat2>2.576) set res2 = 1
if (pac_tstat4>2.576) set res4 = 1
if (res4 = 1) set ar_correction = 4
if (res2 = 1) set ar_correction = max(ar_correction,2)
if (res1 = 1) set ar_correction = max(ar_correction,1)
!
 use ols_start ols_stop
 useadd ar_correction 0
!
if (res4=1 .AND. res2=1 .AND. res1=1)
  then
do
 fastreg(origin) resids resids{-1} resids{-2} resids{-4}
  set rho1 = ^coef(1)
  set se1 = ^se(1)
  set rho2 = ^coef(2)
  set se2 = ^se(2)
  set rho4 = ^coef(3)
  set se4 = ^se(3)
end
  else
do
 if (res4=1 .AND. res2=1)
  then
do
 fastreg(origin) resids resids{-2} resids{-4}
  set rho1 = 0
  set rho2 = ^coef(1)
  set se2 = ^se(1)
  set rho4 = ^coef(2)
  set se4 = ^se(2)
end
  else
do
if (res4=1 .AND. res1=1)
  then
do
 fastreg(origin) resids resids{-1} resids{-4}
  set rho1 = ^coef(1)
```

```
   set se1 = ^se(1)
   set rho2 = 0
   set rho4 = ^coef(2)
   set se4 = ^se(2)
end
   else
do
if (res4=1)
   then
do
 fastreg(origin) resids resids{-4}
   set rho1 = 0
   set rho2 = 0
   set rho4 = ^coef(1)
   set se4 = ^se(1)
end
   else
do
if (res2=1 .AND. res1=1)
   then
do
 fastreg(origin) resids resids{-1 to -2}
   set rho1 = ^coef(1)
   set se1 = ^se(1)
   set rho2 = ^coef(2)
   set se2 = ^se(2)
   set rho4 = 0
end
   else
do
if (res2=1)
   then
do
 fastreg(origin) resids resids{-2}
   set rho1 = 0
   set rho2 = ^coef(1)
   set se2 = ^se(1)
   set rho4 = 0
end
   else
do
if (res1=1)
   then
do
 fastreg(origin) resids resids{-1}
   set rho1 = ^coef(1)
   set se1 = ^se(1)
   set rho2 = 0
   set rho4 = 0
end
end
end
end
end
end
end
set NUMAR = (rho1<>0)+(rho2<>0)+(rho4<>0)
!
```

```
SET RHOGAP = NUMAR*(GAP**2)
SET RHOSTAT = (rho1-orho1)**2+(rho2-orho2)**2+(rho4-orho4)**2
set rhoiter = rhoiter + 1
set rhostat = (rhostat<=rhogap)
if (rhoiter>maxiter) set rhostat=1
until (rhostat=1)
!
  call k2iter
until (k2iter_end=1)
call output
!
end newregs
!
! ***  REGPROC SETS UP SIGMA, OMEGA, SHI, TO BE USED IN CALCULATING BHAT
!
macro regproc
!
! ***  CONSTRUCT SIGMA BASED ON VALUES OF RHO1, RHO2, RHO4
!
! ***  CONSTRUCT SIGMA BASED ON VALUES OF RHO1, RHO2, RHO4
!
use ols_start ols_stop
useadd ar_correction 0
!
  r1zero = -rho1*identity(n1)
  r2zero = -rho2*identity(n2)
  r4zero = -rho4*identity(n4)
!
   matrix row_zero (1,nobs) nobs*0
   matrix col_zero1 (n1,1) n1*0
   matrix col_zero2 (n2,2) n2*0 n2*0
   matrix col_zero4 (n4,4) n4*0 n4*0 n4*0 n4*0
  r1zero = align(r1zero,col_zero1)
  r2zero = align(r2zero,col_zero2)
  r4zero = align(r4zero,col_zero4)
!
  r1zero = stack(row_zero,r1zero)
  r2zero = stack(row_zero,row_zero,r2zero)
  r4zero = stack(row_zero,row_zero,row_zero,row_zero,r4zero)
!
pzero = p_nought + r1zero + r2zero + r4zero
set trnum = ar_correction + 1
psig = row(pzero,trnum,nobs)
!
! *** GIVEN SIGMA, OMEGA, etc. (incl. k2 from K2ITER), CALCULATE BHAT
!
call bcalc
end regproc
!
! ***  BCALC CALCULATES BHAT
!
macro bcalc
!
! ***  CALCULATE SIGMA2, USE TO CONSTRUCT OMEGA (CALLED SOMEGA)
!
invsigma = tr(psig)*psig
!
! ***  VERIFY EXISTENCE OF STOCHASTIC RESTRICTIONS
```

```
!
if (stoch>0)
  then
do
 bvec = inv(tr(xmat)*xmat)*tr(xmat)*yvec
  if (fixed>0)
    then
     bvec = bvec + inv(tr(xmat)*xmat)*tr(cmat)*inv(cmat* ...
         inv(tr(xmat)*xmat)*tr(cmat))* ...
                (d - cmat*bvec)
 sigma2 = (1/(nobs-k+g))*(tr(yvec-xmat*bvec)*(yvec-xmat*bvec))
 somega = (1/sigma2)*omega
 mixed1 = tr(cap_r)*inv(somega)*cap_r
 mixed2 = tr(cap_r)*inv(somega)*little_r
end
if (stoch=0)
  then
do
 mixed1 = 0*identity(k)
 vector mixed2 k*0
end
if (px=0)
  then
set k2 = 0
!
! ***  SET UP SHILLER RESTRICTION(S) FOR USE IN CALCULATING BHAT
!
shill = k2*tr(shi)*shi
if (npd>1)
  then
   dot num[2 to npd]
      shill = shill + k2_:*tr(shi:)*shi:
   enddot
!
bstar = inv(tr(xmat)*invsigma*xmat + mixed1 + shill)* ...
         (tr(xmat)*invsigma*yvec + mixed2)
!
! ***  VERIFY EXISTENCE AND THEN IMPLEMENT (if necessary) FIXED RESTRICTIONS
!
if (fixed>0)
  then
 bhat = bstar + inv(tr(xmat)*invsigma*xmat + mixed1 + shill)* ...
                 tr(cmat)*inv(cmat* ...
          inv(tr(xmat)*invsigma*xmat + mixed1 + shill)*tr(cmat))* ...
                (d - cmat*bstar)
  else
 bhat = bstar
!
end bcalc
!
! ***  MACRO K2ITER ITERATES OVER K2 ASSOCIATED W/ SHILLER RESTRICTION
!
macro k2iter
!
! ***  START OUT INITIALIZING SOME THINGS:
! ***       MAXITER = MAX. # OF ITERATIONS K2ITER WILL GO THROUGH
! ***       INIT_K2 = FIRST NON-ZERO VALUE OF K2
! ***       K2ADJ = MULTIPLIER TO ADJUST K2 BEFORE A GOOD VALUE OF K2 IS FOUND
```

```
! ***        GAP = MAXIMUM ALLOWABLE  CHANGE IN K2
!
 set iter = iter + 1
 set init_k2 = 0.025
 set k2adj = 2
 set oldk2 = k2
if (npd>1)
  then
dot num[2 to npd]
  set oldk2_: = k2_:
enddot
!
! ***  NOW COME THE GUTS OF K2ITER
!
 if (teststat=0 .and. test1 = 0)
   then
    do
     if (k2=0)
       then
        set k2 = k2 + init_k2
       else
        set k2 = k2*k2adj
    end
   else
    do
     if (k2=0)
       then
        set k2 = k2
       else
        set k2 = (goodk2 + maxk2) / 2
    end
!
! ***  ITERATE OVER ANY ADDITIONAL SHILLER RESTRICTIONS
!
if (npd>1)
  then
dot num[2 to npd]
 if (teststat_:=0 .and. test1: = 0)
   then
    do
     if (k2_:=0)
       then
        set k2_: = k2_: + init_k2
       else
        set k2_: = k2_:*k2adj
    end
   else
    do
     if (k2_:=0)
       then
        set k2_: = k2_:
       else
        set k2_: = (goodk2_: + maxk2_:) / 2
    end
enddot
!
call regproc
!
```

```
! ***  DEFINE SX0-SX3 AS PRICE COEFFS., THEN DEFINE TEST STATISTICS
!
 use 1 k
 bvars = bhat
 use pre_svars pre_svars
 useadd 1 1
 set sx0 = bvars
 useadd 1 1
 set sx1 = bvars
 useadd 1 1
 set sx2 = bvars
 useadd 1 1
 set sx3 = bvars
 useadd 1 1
 set sx4 = bvars
!
! ***  TESTSTAT1 = 1 IF ALL THE PRICE COEFFS. HAVE THE SAME SIGN
!
 if (sx0>0)
   then
 set teststat1 = (sx1>=0)*(sx2>=0)*(sx3>=0)*(sx4>=0)
   else
 set teststat1 = (sx1<=0)*(sx2<=0)*(sx3<=0)*(sx4<=0)
 set teststat = teststat1
 if (teststat=1 .and. test1=0)
   then
    do
      set test1 = 1
      set goodk2 = k2
    end
 if (teststat=1)
   then
    do
     if (k2<goodk2)
       then
        set goodk2 = k2
    end
 if (teststat=0 .and. test1=1)
   then
    do
      if (k2>(goodk2-gap))
        then
      set goodk2 = k2 + init_k2*2
    end
 if (teststat=0 .and. k2>maxk2)
   then
      set maxk2 = k2
set diffk2 = abs(k2 - oldk2)
set k2iter_end = teststat*(diffk2<GAP)
!
if (npd>1)
  then
dot num[2 to npd]
!
 use pre_svars: pre_svars:
 useadd 1 1
 set sx0: = bvars
 useadd 1 1
```

```
 set sx1: = bvars
 useadd 1 1
 set sx2: = bvars
 useadd 1 1
 set sx3: = bvars
 useadd 1 1
 set sx4: = bvars
!
 if (sx0:>0)
   then
 set teststat1: = (sx1:>=0)*(sx2:>=0)*(sx3:>=0)*(sx4:>=0)
   else
 set teststat1: = (sx1:<=0)*(sx2:<=0)*(sx3:<=0)*(sx4:<=0)
 set teststat_: = teststat1:
 if (teststat_:=1 .and. test1:=0)
   then
    do
      set test1: = 1
      set goodk2_: = k2_:
    end
 if (teststat_:=1)
   then
    do
     if (k2_:<goodk2_:)
       then
        set goodk2_: = k2_:
    end
 if (teststat_:=0 .and. test1:=1)
   then
    do
      if (k2_:>(goodk2_:-gap))
        then
      set goodk2_: = k2_: + init_k2*2
    end
 if (teststat_:=0 .and. k2_:>maxk2_:)
   then
      set maxk2_: = k2_:
 set diffk2_: = abs(k2_: - oldk2_:)
 set k2iter_end: = teststat_:*(diffk2_:<GAP)
!
   set k2iter_end = k2iter_end*k2iter_end:
enddot
!
if (iter=maxiter .or. px=0) set k2iter_end = 1
end k2iter
!
! ***  ZCALC CALCULATES Z-VARIABLE AND ADJUSTS DEPENDENT VARIABLE
!                            APPROPRIATELY
!
macro zcalc
!
on group
use ols_start ols_stop
useadd 0 nstoch
d1 = 0
trd = 0
use zstart ols_stop
revise d1 = 1
```

```
time t
revise trd = t - 1
!
use ols_start ols_stop
useadd 0 nstoch
if (stoch=1)
  then
do
 sigma2 = (1/Tmk)*(cross(yvec - xmat*(inv(tr(xmat)*xmat)*tr(xmat)*yvec)))
  if (nstoch=1)
    then
 stmult = sqrt(sigma2)/(sqrt(omega))
    else
 stmult = sqrt(sigma2)*inv(sqrt(diag(omega)))
 yzvec = stack(yvec,stmult*little_r)
 xzmat = stack(xmat,stmult*cap_r)
end
  else
do
 yzvec = yvec
 xzmat = xmat
end
yvar = yzvec
dot num[1 to k]
   x: = col(xzmat,:)
   parameter b: 0
enddot
set kp1 = k + 1
dot num[kp1 to 50]
   x: = 0
   set b: = 0
enddot
if (fixed=1)
  then
do
!
! ***  INCORPORATE FIXED RESTRICTIONS
!
use ols_start ols_stop
dot num[1 to k]
   revise x: = x: + add:
enddot
use 1 g
dseries = d
!
set i = 0
dot restr
   set i = i + 1
  use i
   constant b:
   set b: = dseries
enddot
end
!
use ols_start ols_stop
useadd 0 nstoch
equation zeqn yvar = ...
                    (param1 * d1) /(1+param2*exp(-param3*(trd))) + ...
```

```
                    100000*(param2-abs(param2)) + ...
                    100000*(param3-abs(param3)) + ...
                    b1*x1 + b2*x2 + b3*x3 + b4*x4 + b5*x5 + ...
                    b6*x6 + b7*x7 + b8*x8 + b9*x9 + b10*x10 + ...
                    b11*x11 + b12*x12 + b13*x13 + b14*x14 + b15*x15 + ...
                    b16*x16 + b17*x17 + b18*x18 + b19*x19 + b20*x20 + ...
                    b21*x21 + b22*x22 + b23*x23 + b24*x24 + b25*x25 + ...
                    b26*x26 + b27*x27 + b28*x28 + b29*x29 + b30*x30 + ...
                    b31*x31 + b32*x32 + b33*x33 + b34*x34 + b35*x35 + ...
                    b36*x36 + b37*x37 + b38*x38 + b39*x39 + b40*x40 + ...
                    b41*x41 + b42*x42 + b43*x43 + b44*x44 + b45*x45 + ...
                    b46*x46 + b47*x47 + b48*x48 + b49*x49 + b50*x50
regress (maxit=200) zeqn
recover vmat vcov
se = diag(vmat)
!
ser = sqrt(se)
set z1 = k - g + 1
set z2 = z1 + 1
set z3 = z2 + 1
set se_z1 = ser[1]
set se_z2 = ser[2]
set se_z3 = ser[3]
 use 1 3
series zvars param1 param2 param3
series se_z se_z1 se_z2 se_z3
t_z = zvars / se_z
!
use ols_start ols_stop
z = (d1*param1) / (1 + param2*exp(-param3*trd))
dot depvar
   newy = : - z
enddot
mmake yvec newy
!
end zcalc
!
! ***  OUTPUT PRESENTS THE TRADITIONAL RCF OUTPUT INTO A .LST FILE
!
macro output
!
! ***  CALCULATE EVERYTHING TO BE PRINTED
!
! ***  CONSTRUCT COEFFICIENTS, STD. ERRORS, T-STATISTICS, & KEYSTATS
!
off group
set df = Tmk - ar_correction + g - 3*ZVAR - (NUMAR)
set k1 = k - (1 + g)
resid = psig*yvec - psig*xmat*bhat
ssr = cross(resid)
set mse = ssr / df
set se = sqrt(mse)
!
on group
 use ols_start ols_stop
mmake depvec depvar
 useadd ar_correction 0
resids = resid
```

```
my = mean(depvec)
ssy = cross(depvec - my)
!
set r2 = 1 - (ssr/ssy)
set adjr2 = 1 - (ssr/df)/(ssy/(nobs-1))
set fstat = ((ssy-ssr)/k1)/(ssr/df)
prob(F,k1,df) probf fstat
!
 use ols_start ols_stop
 useadd ar_correction 0
 useadd 1 0
dw = cross(resids - resids{-1}) / ssr
!
set sigma2_1 = ssr / Tmk
set sigma2 = ssr / (Tmk + g)
vmat = sigma2_1*inv(tr(xmat)*invsigma*xmat+mixed1)
if (fixed)
  then
 vmat = (sigma2/sigma2_1)*(vmat - ...
         tr(cmat*vmat)*inv(cmat*vmat*tr(cmat))*cmat*vmat)
serr = sqrt(abs(diag(vmat)))
!
 use 1 k
sevars = round(1000000*serr)/1000000
t_ratio = bvars / sevars
!
 set seas1 = seas + 1
!
 use 1 9
series keystats ssr mse se dw r2 adjr2 df fstat probf
if (stoch>0)
  then
do
 use 1 2
set se_y = sqrt(var_y)
series series_y.py se_y
end
if (npd>0)
  then
do
  use npd
  k2values = k2
  if (npd>1)
    then
   dot num[2 to npd]
    use : :
    useadd -1 -1
    revise k2values = k2_:
   enddot
end
!
! ***  CONSTRUCT THE NAME-LISTS FOR THE XVARS, PRICE VARS, etc.
!
off group
group seas_nlist
group nonpxvars_nlist
group price_list
group pxvars_nlist
```

```
group laglist 'current' 'lag 1' 'lag 2' 'lag 3' 'lag 4' 'Sum'
 on group
   dot seasonals
      group seas_nlist seas_nlist q:
   enddot
   dot nonpxvars
      group nonpxvars_nlist nonpxvars_nlist q:
   enddot
!
on group
   dot pxvars
      group pxvars_nlist pxvars_nlist q:
      do i = 2 to 5
        group pxvars_nlist pxvars_nlist laglist[i]
      end
      group price_list price_list q:
   enddot
if (npd>1)
  then
   group price_list price_list 'Sum'
off group
group xvars_namelist seas_nlist nonpxvars_nlist pxvars_nlist
!
! ***  CONSTRUCT THE NECESSARY INFORMATION FOR THE PRICE-ELASTICITY TABLE
!
if (npd>0)
  then
do
 set link_lines = npd + (npd>1)
 group col_list
 group prices
  on group
  dot num[1 to npd]
   group col_list col_list (decimal 6)
   set last_lag: = pre_pxvars + 5*:
   set current:  = pre_pxvars + 1 + 5*(:-1)
   pmat: = row(col(vmat,current:,last_lag:),current:,last_lag:)
   sum_px: = rsum(csum(pmat:))
   set se_px: = sqrt(abs(sum_px:))
   use current: current:
    set coeff0: = bvars
   useadd 1 1
    set coeff1: = bvars
   useadd 1 1
    set coeff2: = bvars
   useadd 1 1
    set coeff3: = bvars
   useadd 1 1
    set coeff4: = bvars
   set sum_px: = coeff0: + coeff1: + coeff2: + coeff3: + coeff4:
   set tstat_px: = sum_px: / se_px:
    use 1 7
   series price: coeff0: coeff1: coeff2: coeff3: coeff4: sum_px: tstat_px:
   group prices prices price:
  enddot
  if (npd>1)
    then
     do
```

```
   set firstpx = seas + nonpx + 1
   pmat = row(col(vmat,firstpx,k),firstpx,k)
   sum_px = rsum(csum(pmat))
   set se_px = sqrt(abs(sum_px))
    use firstpx k
   sum_px = sum(bvars)
   set tstat_px = sum_px / se_px
    use 1 7
   series price0 5*100 sum_px tstat_px
   group col_list col_list (decimal 6)
   group prices prices price0
     end
end
!
! ***  MECHANICAL NET TRENDS
!
on group
use ols_start ols_stop
yfit = xmat*bhat
yhat = exp(yfit)*exp(z)*n22_plus*bdays
yact = exp(depvec)*n22_plus*bdays
!
use ols_stop ols_stop
useadd -23 -20
yfit5 = sum(yhat)
yact5 = sum(yact)
useadd 4 4
yfit4 = sum(yhat)
yact4 = sum(yact)
useadd 4 4
yfit3 = sum(yhat)
yact3 = sum(yact)
useadd 4 4
yfit2 = sum(yhat)
yact2 = sum(yact)
useadd 4 4
yfit1 = sum(yhat)
yact1 = sum(yact)
useadd 4 4
yfit0 = sum(yhat)
yact0 = sum(yact)
!
set nt5 = ((yact0/yact5)*(yfit5/yfit0))**(1/5)
set nt4 = ((yact0/yact4)*(yfit4/yfit0))**(1/4)
set nt3 = ((yact0/yact3)*(yfit3/yfit0))**(1/3)
set nt2 = ((yact0/yact2)*(yfit2/yfit0))**(1/2)
set nt1 = ((yact0/yact1)*(yfit1/yfit0))
use 1 5
series mechs_g nt5 nt4 nt3 nt2 nt1
!
! ***  RHO-COEFFICIENTS & AUTOCORRELATION STRUCTURE OF RESIDUALS
!
set arx = ar_correction
if (arx=4) set arx = 3
use 1 3
group ar_names 'Rho-1' 'Rho-2' 'Rho-4'
series ar_b rho1 rho2 rho4
series ar_s se1 se2 se4
```

```
ar_t = ar_b / ar_s
!
on group
use ols_start ols_stop
useadd ar_correction 0
inspect resids 16
use 1 17
time lag
lag = lag - 1
ar = ^acor
pr = ^pacor
ps = ^pacorse
pt = pr / ps
!
! ***  PRINT OUT SEASONAL INDEX, REGRESSION RESIDUALS
!
group year_list '1971' '1972' '1973' '1974' '1975' '1976' '1977' '1978' '1979' ...
          '1980' '1981' '1982' '1983' '1984' '1985' '1986' '1987' '1988' '1989' ...
          '1990' '1991' '1992' '1993' '1994' '1995' '1996' '1997' '1998' '1999' ...
          '2000' '2001' '2002' '2003' '2004' '2005' '2006' '2007' '2008' '2009'
on group
use 1971q1 ols_start
set start_year = trunc((^obs-1)/4)+1
use 1971q1 ols_stop
set end_year = trunc((^obs-1)/4)+1
group year_sublist year_list[start_year to end_year]
set start_year = start_year + 1970
set end_year = end_year + 1970
!
use ols_start ols_stop
xseas = col(xmat,1,seas)
bseas = row(bhat,1,seas)
seasindex = xseas*bseas
!
use 1970q1 2010q4
dummy q1 70q1 4
dummy q2 70q2 4
dummy q3 70q3 4
dummy q4 70q4 4
!
off missing
seasi1 = seasindex*q1
seasi2 = seasindex*q2
seasi3 = seasindex*q3
seasi4 = seasindex*q4
!
resid1 = resids*q1
resid2 = resids*q2
resid3 = resids*q3
resid4 = resids*q4
!
on group
use start_year end_year
convert (sum) seasi1 seasi2 seasi3 seasi4 resid1 resid2 resid3 resid4
!
! ***  PRINT OUT THE FIVE PAGES OF OUTPUT
!
on group
```

```
write(outfile title)
 use seas1 k
write(outfile bst)(bvars sevars t_ratio) ...
     'Non-Seasonal Variable Coefficients' ...
     '-----------------------------------' ...
     'Coefficients' 'Std. Error' 'T-ratio' xvars_namelist[seas1 to k]
 use 1 7
if (px>0)
  then
write(outfile link_report) (prices) price_list laglist
 use 1 9
write(outfile tabl)(keystats) ...
     'Sum of Square Resids' 'Mean Sq. Error' 'Standard Error of Model' ...
     'Durbin-Watson' 'R-Square' 'Adj. R-Square' 'Degrees of Freedom' ...
     'F-Statistic' 'Significance of F'
 use 1 5
write(outfile nettrends) (mechs_g) '5-year Net Trend' '4-year Net Trend' ...
     '3-year Net Trend' '2-year Net Trend' '1-year Net Trend'
if (ZVAR=1)
  then
   do
 use 1 3
write(outfile zprint) (zvars se_z t_z) ...
         'Z-Parameters' 'Std. Error' 'T-Ratio' 'Parameter 1' 'Parameter 2'
'Parameter 3'
   end
 use 1 2
if (stoch>0)
  then
write(outfile mixy) series_y
if (npd>0)
  then
do
 use 1 npd
write(outfile k2print) (k2values) price_list
end
if (ARX>0)
  then
do
 use 1 ARX
write(outfile bst)(ar_b ar_s ar_t) ...
     'AR-Coefficients' ...
     '---------------' ...
     'AR-coefficients' 'Std. Error' 'T-ratio' ar_names[1 to ARX]
end
 use 2 10
write(outfile) ''
write(outfile) 'Current-Stage Residuals'
write(outfile inspct) (lag ar pr ps pt)
 use 1 seas
write(outfile bst)(bvars sevars t_ratio) ...
     'Seasonal Coefficients' ...
     '---------------------' ...
     'Coefficients' 'Std. Error' 'T-ratio' xvars_namelist[1 to seas]
 use start_year end_year
write(outfile) ''
concat line1   '                                SEASONAL INDEX'
concat line2   '                                --------------'
```

```
write(outfile tab2) (seasi1 seasi2 seasi3 seasi4) year_sublist
concat line1   '                          REGRESSION RESIDUALS'
concat line2   '                          --------------------'
write (outfile tab2) (resid1 resid2 resid3 resid4) year_sublist
!
end output
!
! ***  DEFINE ALL THE REPORTS
!
report title
     columns 4
     display left 'Demand Equation for:'  at 4  volname
     display left 'Sample Period      :'  at 4  date1
     display left ''
end title
report bst
     columns (decimal 6) (same) (same)
     skip 1
     display midbody label
     display midbody label
     skip 1
     display label 3
     display '____________' '____________' '__________' skip
     display all row every 1 left label
end bst
report link_report
     columns col_list
     blanks 100
     display skip
     display skip
     display midbody 'LONG RUN PRICE ELASTICITIES'
     display midbody '---------------------------'
     display skip
     display labels link_lines
     display bars
     display skip
     display 5 rows every 1 left label
     display bars
     display left label rows
     display skip
     display left 'T-Statistic on Sum' rows
end link_report
report tab1
     display page
     display midbody 'REGRESSION DIAGNOSTICS'
     display midbody '----------------------'
     columns (25 34 decimal 6)
     skip 1
     display 6 rows left label
     columns (25 34 decimal 0)
     display 1 rows left label
     columns (25 34 decimal 3)
     display 1 rows left label
     columns (25 34 decimal 3 suffix '%')
     display 1 rows left label
end tab1
report nettrends
  columns (25 45 decimal 6)
```

```
  skip 1
  display midbody 'ANNUAL MECHANICAL NET TRENDS'
  display midbody '----------------------------'
  skip 1
  display all row left labels
end nettrends
report zprint
     columns (decimal 6) (same) (same)
     skip
     display midbody ' Z-Variable Parameters'
     display midbody '----------------------'
     skip
     display label 3
     display '___________' '__________' '_________' skip
     display all row every 1 left label
end zprint
report mixy
     columns (15 25 decimal 6) (40 50 same)
     skip
     display midbody 'COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME
ELASTICITY'
     display midbody
'-------------------------------------------------------------------'
     skip 1
     display 'Point Estimate' 'Standard Error'
     skip 1
     display all row every 1 left
end mixy
report k2print
     columns (decimal 6)
     skip
     display left 'CHOSEN K-SQUARE VALUES'
     display left '----------------------'
     display npd rows every 1 left label
end k2print
report inspct
     columns (1 5 suffix ' .') (6 21 decimal 6) (24 39 same) (42 57 same) (59 75
same)
     skip
     display midbody 'AUTOCORRELATION STRUCTURE OF RESIDS'
     display midbody '-----------------------------------'
     skip
     display '' 'Auto-' 'Partial Auto-' 'Standard' 'T-stat on'
     display 'Lag' 'Correlation' 'Correlation' 'Error' 'Partial'
     display '
.....................................................................'
     display all row every 1 left
     display page
end inspct
report seasprint
     columns (decimal 6)
     skip
     display left 'SEASONAL COEFFICIENTS'
     display left '---------------------'
     display all row every 1 left label
end seasprint
report tab2
     columns (decimal 6) (same) (same) (same)
```

```
     blanks 0
     skip 1
     display at 2 line1
     display at 2 line2
     skip 1
     display 'Quarter 1' 'Quarter 2' 'Quarter 3' 'Quarter 4'
     skip 1
     display all row left label
     display page
end tab2
!
```

VOL5_7.SAC

```
!
! ****************************************************************
! ***************  PRIVATE FIRST-CLASS CARDS  ********************
! ****************************************************************
!
off group
date ols_start 1971q1
date zstart    1979q2
!
group depvar bgvol5_7
group nonpxvars ...
          con yd96perm cs96c_int_lws mach_dum xod5_7 xod_trend90 d88q4 d91q3
group pxvars ...
          px1_3u px5_7u
!
matrix cap_r (1,35) 18*0 1 16*0
vector little_r 0.7108
matrix omega (1,1) 0.002001
matrix cmat (14,35) 25*0 4*0 1 5*0 ...
                       1     -1 33*0 ...
                   3*0 1     -1 30*0 ...
                   5*0 1     -1 28*0 ...
                   6*0 1     -1 27*0 ...
                   7*0 1     -1 26*0 ...
                   8*0 1     -1 25*0 ...
                   9*0 1     -1 24*0 ...
                  10*0 1     -1 23*0 ...
                  12*0 1        22*0 ...
                  13*0 1        21*0 ...
                  14*0 1        20*0 ...
                  15*0 1        19*0 ...
                  16*0 1        18*0
vector d 0 13*0
!
group restr 30 2 5 7 8 9 10 11 12 13 14 15 16 17
on group
use ols_start ols_stop
dot num[1 to 40]
   add: = 0
enddot
add1 = sep16_30
add4 = dec11_12
add6 = dec16_17 + dec18_19 + dec20_21 + dec22_23 + dec24 + dec25_jan1
!
set ZVAR = 1
parameter param1 0.500 param2 20 param3 0.150
set stoch = 1
set fixed = 1
!
call newregs (bvars5_7 vmat5_7)
!
! ***  X_LC1, X_LC2, VAR_LC1 & VAR_LC2 ARE USED IN VOL01SP.SAC AND VOL1_3WS.SAC
!
use 26 30
x_lc = sum(bvars5_7)
```

```
var_lc = rsum(csum(row(col(vmat5_7,26,30),26,30;))
set t_lc = x_lc / sqrt(var_lc)
!
set x_lc1_ws = x_lc*(0.023891)
set se_lc1 = x_lc1 / t_lc
set var_lc1_ws = se_lc1**2
!
set x_lc2_ws = x_lc*(0.035585)
set se_lc2 = x_lc2 / t_lc
set var_lc2_ws = se_lc2**2
!
```

VOL1_3WS.SAC

```
!
! ********************************************************************
! ***************  WORKSHARED FIRST-CLASS LETTERS   ******************
! ********************************************************************
!
! *** YOU MUST RUN VOL5_7.SAC FIRST, OR DEFINE X_LC2 & VAR_LC2 HERE
!
off group
date ols_start 1983q1
!
group depvar bgvol1_3ws
group nonpxvars ...
          con yd96perm ucap lt_ws gdist mc95 d1_3ws_fit px3r_ncru px5_7wsu
group pxvars ...
          px1_3wsu
!
matrix cap_r (1,31) 25*0 1 5*0
vector little_r x_lc2_ws
matrix omega (1,1) var_lc2_ws
!
matrix cmat (9,31) ...
                30*0 1 ...
                     1 -1 29*0 ...
                   0 1 -1 28*0 ...
                 4*0 1 -1 25*0 ...
                 5*0 1 -1 24*0 ...
                 7*0 1 -1 22*0 ...
                 8*0 1 -1 21*0 ...
                 9*0 1 -1 20*0 ...
                14*0 1 -1 15*0
vector d 0 8*0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars1_3ws vmat1_3ws)
!
! ***  X_D & VAR_D ARE USED IN VOL01SP.SAC
!
use 24
set x_d_ws = -1*bvars1_3ws
var_xd_ws = rsum(csum(row(col(vmat1_3ws,24,24),24,24)))
!
use 25
set x_3_ws = 1.456462*bvars1_3ws
var_x3_ws = rsum(csum(row(col(vmat1_3ws,25,25),25,25))
!
```

VOL01SP.SAC

```
!
! ************************************************************************
! ***************  SINGLE-PIECE FIRST-CLASS LETTERS   ********************
! ************************************************************************
!
! ***  YOU MUST RUN VOL5_7.SAC OR DEFINE X_LC1 AND VAR_LC2 HERE
! ***  YOU MUST ALSO RUN VOL1_3WS.SAC OR DEFINE X_D AND VAR_D HERE
!
off group
date ols_start 1983q1
!
group depvar bgvol01sp
group nonpxvars ...
          con yd96perm ucap4 lt_ws lt_wsq cs96c_int_lws gdist mc95 dl_3ws px05sp
group pxvars ...
          px01sp
!
matrix cap_r (3,32) 26*0 1 5*0 ...
                    25*0 1 6*0 ...
                    18*0 1 13*0
vector little_r x_lc1_ws x_d_ws .5127
set var_y = (0.5127 / 21.30)**2
matrix omega (3,3) var_lc1_ws 0 0 0 var_xd_ws 0 0 0 var_y
!
matrix cmat (12,32) ...
                29*0 1 2*0 ...
                30*0 1 0 ...
                31*0 1 ...
                     1 -1 30*0 ...
                   0 1 -1 29*0 ...
                 3*0 1 -1 27*0 ...
                 4*0 1 -1 26*0 ...
                 5*0 1 -1 25*0 ...
                 6*0 1 -1 24*0 ...
                 7*0 1 -1 23*0 ...
                 9*0 1 -1 21*0 ...
                10*0 1 -1 20*0
vector d 3*0 9*0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars01sp vmat01sp)
!
```

VOL3R_CR.SAC

```
!
! ************************************************************************
! ***************  STANDARD ENHANCED CARRIER ROUTE MAIL   ************
! ************************************************************************
!
off group
date ols_start 1988q1
!
group depvar bgvol3r_cr
group nonpxvars ...
           con str96c wp_nws_n wp_advpr1 i_adv_1 trend d_e11 d_r97
group pxvars ...
           px3r_cr
!
matrix cmat (10,30)      1         29*0 ...
                       0 1      -1 27*0 ...
                     4*0 1      -1 24*0 ...
                     5*0 1      -1 23*0 ...
                     6*0 1      -1 22*0 ...
                     8*0 1      -1 20*0 ...
                     9*0 1      -1 19*0 ...
                    12*0 1      -1 16*0 ...
                    13*0 1      -1 15*0 ...
                    14*0 1      -1 14*0
vector d 10*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars3r_cr vmat3r_cr)
!
use 25
set x_r97 = bvars3r_cr
! ***  0.970705 = (vol3r_cr / vol3r_ncr) for GFY 1998; last full year before
crossover
set xx_r97 = x_r97*(-0.970705)
se_r97 = sqrt(vmat3r_cr[25,25])
set t_r97 = x_r97 / se_r97
set var_r97 = (xx_r97 / t_r97)**2
!
```

VOL3R_NCR

```
!
! ********************************************************************
! ***************  STANDARD REGULAR MAIL   ***************************
! ********************************************************************
!
off group
date ols_start 1988q1
!
group depvar bgvol3r_ncr
group nonpxvars ...
           con str96c2 wp_nws_n wp_advpr4 trend i_adv_1 d_r97 px1_3wsu
group pxvars px3r_ncru
!
matrix cap_r (1,30) 17*0 6*0 1 6*0
vector little_r xx_r97
matrix omega (1,1) var_r97
!
matrix cmat (15,30) ...
                         1    29*0 ...
                         1 -1 28*0 ...
                     3*0 1 -1 25*0 ...
                     4*0 1 -1 24*0 ...
                     6*0 1 -1 22*0 ...
                     7*0 1 -1 21*0 ...
                     8*0 1 -1 20*0 ...
                     9*0 1 -1 19*0 ...
                    10*0 1 -1 18*0 ...
                    11*0 1 -1 17*0 ...
                    12*0 1 -1 16*0 ...
                    25*0 2*0 1 2*0 ...
                    25*0 3*0 1   0 ...
                    29*0 1 ...
                    17*0 7*0 1 5*0
vector d 11*0 3*0 x_3_ws
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars3r_ncr vmat3r_ncr)
!
```

VOL4.SAC

```
!
! ***************************************************************
! ************      GOVERNMENT CARDS        ********************
! ***************************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol4
!
group nonpxvars con yd96perm trend d_r97 dvol4 px4
group pxvars
!
matrix cap_r (1,23) 18*0 1 4*0
vector little_r 0.7108
matrix omega (1,1) 0.002001
!
matrix cmat (10,23) 3*0 1   -1 18*0 ...
                    4*0 1   -1 17*0 ...
                    4*0 1 0 -1 16*0 ...
                    8*0 1   -1 13*0 ...
                   10*0 1   -1 11*0 ...
                   11*0 1   -1 10*0 ...
                   12*0 1   -1  9*0 ...
                   13*0 1   -1  8*0 ...
                   14*0 1   -1  7*0 ...
                   15*0 1   -1  6*0
vector d 10*0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars4 vmat4)
!
```

VOL2R.SAC

```
!
! ************************************************************************
! ***************  PERIODICAL REGULAR MAIL   ***************************
! ************************************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol2r
group nonpxvars ...
          con yd96perm ucap4 wpip2 trend cs96c_int_lws
group pxvars ...
          px2r
!
matrix cap_r (1,28) 18*0 1 9*0
vector little_r 0.5361
matrix omega (1,1) 0.00144767
!
matrix cmat (9,28) ...
                   27*0 1 ...
                        1     -1 26*0 ...
                    4*0 1     -1 22*0 ...
                    4*0 1   0 -1 21*0 ...
                    6*0 1     -1 20*0 ...
                    7*0 1     -1 19*0 ...
                    8*0 1     -1 18*0 ...
                    9*0 1     -1 17*0 ...
                   11*0 1     -1 15*0
vector d 8*0 0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars2r vmat2r)
!
```

VOL11.SAC

```
!
! ********************************************************************
! ***************  PERIODICAL WITHIN COUNTY MAIL   ******************
! ********************************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol11
group nonpxvars ...
           con yd96perm newrpt d87 trend panelchg px11
group pxvars
!
matrix cap_r (1,24) 18*0 1 5*0
vector little_r 0.5361
matrix omega (1,1) 0.00144767
!
matrix cmat (10,24) ...
                     1         23*0 ...
                   0 1      -1 21*0 ...
                 2*0 1      -1 20*0 ...
                 5*0 1      -1 17*0 ...
                 5*0 1 0    -1 16*0 ...
                 8*0 1      -1 14*0 ...
                 8*0 1    0 -1 13*0 ...
                12*0 1      -1 10*0 ...
                13*0 1      -1  9*0 ...
                15*0 1      -1  7*0
vector d 10*0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars11 vmat11)
!
```

VOL3N.SAC

```
!
! ************************************************************************
! ***************  STANDARD BULK NONPROFIT MAIL   ***********************
! ************************************************************************
!
off group
date ols_start 1988q1
!
group depvar bgvol3n
group nonpxvars ...
           con c96c1 wp_advpr2 trend rule94 d_el1 d_el3
group pxvars px3nu
!
matrix cmat (11,29)     1     -1 27*0 ...
                     3*0 1     -1 24*0 ...
                     4*0 1     -1 23*0 ...
                     5*0 1     -1 22*0 ...
                     6*0 1     -1 21*0 ...
                     7*0 1     -1 20*0 ...
                     8*0 1     -1 19*0 ...
                     9*0 1     -1 18*0 ...
                    10*0 1     -1 17*0 ...
                    13*0 1     -1 14*0 ...
                    14*0 1     -1 13*0
vector d 11*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars3n vmat3n)
!
```

VOL12_13.SAC

```
!
! ************************************************************************
! ***************  PERIODICAL NONPROFIT MAIL   ***************************
! ************************************************************************
!
off group
date ols_start 1978q1
!
group depvar bgvol12_13
group nonpxvars ...
           con yd96perm ucap4 wpip1 trend px12_13
group pxvars
!
matrix cap_r (1,23) 18*0 1 4*0
vector little_r 0.5361
matrix omega (1,1) 0.00144767
!
matrix cmat (12,23) ...
                      1         22*0 ...
                    0 1      -1 20*0 ...
                  2*0 1      -1 19*0 ...
                  3*0 1      -1 18*0 ...
                  5*0 1      -1 16*0 ...
                  7*0 1      -1 14*0 ...
                  9*0 1      -1 12*0 ...
                 11*0 1      -1 10*0 ...
                 12*0 1      -1  9*0 ...
                 13*0 1      -1  8*0 ...
                 14*0 1      -1  7*0 ...
                 15*0 1      -1  6*0
vector d 12*0
!
set ZVAR = 0
set stoch = 1
set fixed = 1
!
call newregs (bvars12_13 vmat12_13)
!
```

VOL25.SAC

```
!
! ************************************************************
! ************      PARCEL POST MAIL        ******************
! ************************************************************
!
off group
date ols_start 1990q1
!
group depvar bgvol25
!
group nonpxvars ...
           con str96c msadj d97q4 d98q1_2 d_dc px_pr_pp
group pxvars px_ups_r px25
!
matrix cmat (13,34) ...
                31*0 1 2*0 ...
                32*0 1 0 ...
                33*0 1 ...
                   0 1 -1 31*0 ...
                 2*0 1 -1 30*0 ...
                 4*0 1 -1 28*0 ...
                 5*0 1 -1 27*0 ...
                 7*0 1 -1 25*0 ...
                 8*0 1 -1 24*0 ...
                 9*0 1 -1 23*0 ...
                12*0 1 -1 20*0 ...
                14*0 1 -1 18*0 ...
                15*0 1 -1 17*0
vector d 3*0 10*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
call newregs (bvars25 vmat25)
!
```

VOL28.SAC

```
!
! ****************************************************************
! ***************  STANDARD BOUND PRINTED MATTER   *************
! ****************************************************************
!
off group
date ols_start 1979q1
date zstart    1979q2
!
group depvar bgvol28
group nonpxvars con c96c sears d98q1
group pxvars px28
!
matrix cmat (8,26) ...
                  3*0 1      -1 21*0 ...
                  4*0 1      -1 20*0 ...
                  6*0 1      -1 18*0 ...
                  8*0 1      -1 16*0 ...
                  9*0 1      -1 15*0 ...
                 11*0 1      -1 13*0 ...
                 24*0 1 0 25*0 1
vector d 6*0 2*0
!
group restr 5 6 8 10 11 13 26
on group
use ols_start ols_stop
dot num[1 to 32]
   add: = 0
enddot
add4 = dec11_12 + dec13_15
add7 = dec18_19
add9 = dec22_23 + dec24
add12 = jan_feb
!
set ZVAR = 1
parameter param1 0.500 param2 20 param3 0.150
set stoch = 0
set fixed = 1
!
call newregs (bvars28 vmat28)
!
```

VOL29.SAC

```
!
! ****************************************************************
! ***************  STANDARD SPECIAL RATE MAIL   ****************
! ****************************************************************
!
off group
date ols_start 1988q1
!
group depvar bgvol29_30
group nonpxvars con str96c1 d98q1 dvol29
group pxvars px29_30
!
matrix cmat (11,26)  25*0         1 ...
                   2*0 1     -1 22*0 ...
                   2*0 1  0  -1 21*0 ...
                   5*0 1     -1 19*0 ...
                   6*0 1     -1 18*0 ...
                   8*0 1     -1 16*0 ...
                   9*0 1     -1 15*0 ...
                  10*0 1     -1 14*0 ...
                  14*0        1 11*0 ...
                  15*0        1 10*0 ...
                  16*0        1  9*0
vector d 0 10*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars29_30 vmat29_30)
!
```

VOL10.SAC

```
!
! ************************************************
! ***************  MAILGRAMS   *******************
! ************************************************
!
off group
date ols_start 1975q1
!
group depvar bgvol10
group nonpxvars ...
           con trend
group pxvars
!
matrix cmat (10,19)     1          18*0 ...
                    3*0 1      -1 14*0 ...
                    4*0 1      -1 13*0 ...
                    5*0 1      -1 12*0 ...
                    5*0 1    0 -1 11*0 ...
                    7*0 1      -1 10*0 ...
                    8*0 1      -1  9*0 ...
                   10*0 1      -1  7*0 ...
                   11*0 1      -1  6*0 ...
                   12*0 1      -1  5*0
vector d 10*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars10 vmat10)
!
```

VOL31.SAC

```
!
! ************************************************
! ***************  POSTAL PENALTY MAIL   ***********
! ************************************************
!
off group
date ols_start 1988q1
!
group depvar bgvol31
group nonpxvars ...
           con trend t97
group pxvars
!
matrix cmat (13,20)  ...
                        1      -1 18*0 ...
                    2*0 1      -1 16*0 ...
                    3*0 1      -1 15*0 ...
                    3*0 1    0 -1 14*0 ...
                    6*0 1      -1 12*0 ...
                    7*0 1      -1 11*0 ...
                    7*0 1    0 -1 10*0 ...
                    7*0 1  2*0 -1  9*0 ...
                   10*0 1      -1  8*0 ...
                   12*0 1      -1  6*0 ...
                   13*0 1      -1  5*0 ...
                   14*0 1      -1  4*0 ...
                   15*0 1      -1  3*0
vector d 13*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars31 vmat31)
!
```

VOL33.SAC

```
!
! ********************************************************************
! ***************  FREE-FOR-THE-BLIND MAIL   ************************
! ********************************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol33
group nonpxvars ...
           con trend
group pxvars
!
matrix cmat (10,19)  0 1      -1 16*0 ...
                   4*0 1      -1 13*0 ...
                   4*0 1    0 -1 12*0 ...
                   4*0 1 2*0 -1 11*0 ...
                   4*0 1 3*0 -1 10*0 ...
                   9*0 1      -1  8*0 ...
                  12*0 1      -1  5*0 ...
                  13*0 1      -1  4*0 ...
                  14*0 1      -1  3*0 ...
                  15*0 1 -1       2*0
vector d 10*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars33 vmat33)
!
```

VOL35.SAC

```
!
! ************************************************
! ************   REGISTERED MAIL   ***************
! ************************************************
!
off group
date ols_start 1984q1
!
group depvar bgvol35
group nonpxvars con bgvol1_3 trend tmc96_3 gdist mc96_3 px35
group pxvars
!
matrix cmat (6,24) ...
                  4*0 1     -1 18*0 ...
                  4*0 1   0 -1 17*0 ...
                  7*0 1     -1 15*0 ...
                  9*0 1     -1 13*0 ...
                 10*0 1     -1 12*0 ...
                 15*0 1     -1  7*0
vector d 6*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars35 vmat35)
!
```

VOL36.SAC

```
!
! ***********************************************
! ************   INSURED MAIL   ****************
! ***********************************************
!
off group
date ols_start 1971q1
date zstart    1997q4
!
group depvar bgvol36
group nonpxvars con yd96perm msadj trend bgvol25 d97q4
group pxvars px36
!
matrix cmat (8,28) ...
                      1      -1 26*0 ...
                   3*0 1     -1 23*0 ...
                   4*0 1     -1 22*0 ...
                   6*0 1     -1 20*0 ...
                   8*0 1     -1 18*0 ...
                   9*0 1     -1 17*0 ...
                  11*0 1     -1 15*0 ...
                  27*0 1
vector d 0 7*0
!
group restr 2 5 6 8 10 11 13 28
on group
use ols_start ols_stop
dot num[1 to 40]
   add: = 0
enddot
add1 = sep16_30
add4 = dec11_12 + dec13_15
add7 = dec18_19
add9 = dec22_23 + dec24
add12 = jan_feb
!
set ZVAR = 1
parameter param1 0.500 param2 20 param3 0.150
set stoch = 0
set fixed = 1
!
call newregs (bvars36 vmat36)
!
```

VOL37.SAC

```
!
! ************************************************
! ************   CERTIFIED MAIL   ****************
! ************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol37
group nonpxvars con bgvol1_3 trend gdist d_dc
group pxvars px37
!
matrix cmat (8,27) ...
                  4*0 1      -1 21*0 ...
                  5*0 1      -1 20*0 ...
                  6*0 1      -1 19*0 ...
                  7*0 1      -1 18*0 ...
                  8*0 1      -1 17*0 ...
                  9*0 1      -1 16*0 ...
                 10*0 1      -1 15*0 ...
                 14*0 1      -1 11*0
vector d 8*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars37 vmat37)
!
```

VOL38.SAC

```
!
! ****************************************************************
! ************   COLLECT-ON-DELIVERY (COD)  ********************
! ****************************************************************
!
off group
date ols_start 1971q1
!
group depvar bgvol38
group nonpxvars con trend d97q4
group pxvars px38
!
matrix cmat (9,25) ...
                    0 1      -1 22*0 ...
                  3*0 1      -1 20*0 ...
                  5*0 1      -1 18*0 ...
                  6*0 1      -1 17*0 ...
                  7*0 1      -1 16*0 ...
                  8*0 1      -1 15*0 ...
                  9*0 1      -1 14*0 ...
                 10*0 1      -1 13*0 ...
                 15*0 1      -1  8*0
vector d 9*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
call newregs (bvars38 vmat38)
!
```

VOL_RR.SAC

```
!
! ************************************************
! ************   RETURN RECEIPTS  ****************
! ************************************************
!
off group
date ols_start 1993q1
!
group depvar bgvol_rr
group nonpxvars con trend bgvol37 d_meps
group pxvars px_rr
!
matrix cmat (17,26) ...
                     1 -1 24*0 ...
                   0 1 -1 23*0 ...
                 2*0 1 -1 22*0 ...
                 3*0 1 -1 21*0 ...
                 5*0 1 -1 19*0 ...
                 6*0 1 -1 18*0 ...
                 7*0 1 -1 17*0 ...
                 8*0 1 -1 16*0 ...
                 9*0 1 -1 15*0 ...
                10*0 1 -1 14*0 ...
                12*0 1 -1 12*0 ...
                13*0 1 -1 11*0 ...
                14*0 1 -1 10*0 ...
                15*0 1 -1  9*0 ...
                23*0 1 2*0 24*0 1 0 25*0 1
vector d 14*0 3*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars_rr vmat_rr)
!
```

VOL39.SAC

```
!
! ***********************************************
! ************   MONEY ORDERS     ***************
! ***********************************************
!
off group
date ois_start 1988q1
!
group depvar bgvol39
group nonpxvars con yd96perm ucap
group pxvars px39
!
matrix cmat (9,25) ...
                      1      -1 23*0 ...
                   3*0 1     -1 20*0 ...
                   4*0 1     -1 19*0 ...
                   5*0 1     -1 18*0 ...
                   7*0 1     -1 16*0 ...
                   8*0 1     -1 15*0 ...
                   9*0 1     -1 14*0 ...
                  11*0 1     -1 12*0 ...
                  12*0 1     -1 11*0
vector d 9*0
!
set ZVAR = 0
set stoch = 0
set fixed = 1
!
call newregs (bvars39 vmat39)
!
```

VOL_DC.SAC

```
!
on log
access rcf_r2001
use 2000q1 2001q3
time t
t = t - 1
equation dc bgvol_dc = a + b*bgvol8 + c*px_dc + (p1 / (1+p2*exp(-p3*t)))
CONSTANT b 0 c 0
CONSTANT P1 2 P2 20 P3 1
parameter a 0
regress (maxit=100) dc
PARAMETER P1 2 P2 20 P3 1
regress (maxit=500) dc
!
z_dc = bgvol_dc - (p1 / (1+p2*exp(-p3*t)))
regress z_dc bgvol8 px_dc
z8 = z_dc - bgvol8
regress z8 px_dc
PARAMETER A = ^COEF(1)
PARAMETER B = 1
PARAMETER C = ^COEF(2)
!
regress (maxit=1000) dc
!
use 1 5
series coefs c b p1 p2 p3
punchdif('dc') coefs
```