



PP-IL-001-005

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

PESO CHAVEZ, et al., :
Plaintiffs, : NO. 94 C 5307
v. : Judge Blanche M. Manning
THE ILLINOIS STATE POLICE, et al. : Magistrate Judge
: Edward A. Bobrick
Defendants. :
:

July 12, 1999 DECLARATION OF MARTIN M. SHAPIRO

MARTIN M. SHAPIRO, pursuant to penalty of perjury under 28 U.S.C. § 1746, does hereby state the following:

1. My name is Martin M. Shapiro. I am the same Martin M. Shapiro who previously submitted Declarations in this case.
2. I have been asked by Plaintiffs' counsel to write this Declaration for the purpose of responding to Defendant's Memorandum in Support of Defendants Daubert Motion to Strike Plaintiffs' Experts' reports from Plaintiffs' June 25 Objections.
3. I shall not respond to Defendants' attacks upon me personally. Neither shall I respond to Defendants' erroneous characterization of my prior participation in other court cases, except to note that Defendants are factually incorrect when they

identify me as the plaintiffs' expert in People Who Care.

(Defendants' Memorandum, p. 9.)

4. I shall limit this Declaration to the presentation of two simple data analyses of the data base constructed for Defendants' expert, John J. Donohue, which provided the basis of his report of May 7, 1999. The results of these two analyses clearly confirm my earlier statistical conclusions in this case and clearly refute the conclusions of Defendants' expert in this case.

5. My first analysis mimicked the analyses performed by Professor Donohue for Valkyrie officer incidents involving 1) vehicles which either have license plates from drug source states or are rental cars, and 2) vehicles which neither have license plates from drug source states nor are rental cars. Similarly to the first set of results presented by Professor Donohue in his Exhibit 8, the analysis is specifically for vehicles on Interstate highways, during daylight hours. I used Professor Donohue's definition of Hispanic as surnames which are identified by the Census Bureau as "heavily Hispanic." I used the indicator variable contained in Professor Donohue's database to identify a vehicle as Non-drug state/Non-rental (Indicator=0) or Drug state/Rental (Indicator=1). I also used Professor Donohue's "Hispanic Benchmark Based on License State" for Valkyrie

officers, on Interstate highways, during daylight hours: 6.02% for Non-drug state/Non-rental and 21.98% for Drug state/Rental. The critical addition within my analysis, compared to Professor Donohue's analysis is that I continued my emphasis upon individual officers and districts and, therefore, I calculated the percentage of Hispanic surnames for individual Valkyrie officers within each district.

6. In my first analysis, I calculated the number of standard deviations between the observed and expected (Professor Donohue's Benchmark) percentage of Hispanic surnames using the normal approximation to the binomial distribution for each Valkyrie officer for whom the expected number of incidents with an Hispanic surname was greater than or equal to five. (The normal distribution satisfactorily approximates the binomial distribution whenever the expected number of observation in either category, Hispanic or non-Hispanic, is greater than or equal to five.) Based upon the standard unit-normal distribution, I also calculated the probability associated with the obtained number of standard deviations. Following the usual statistical convention, I considered +1.96 or -1.96 standard deviations, or in probabilistic terms, an associated cumulative probability less than or equal to 0.05, to constitute a statistically significant departure from the Benchmark percentage

provided by Professor Donohue. (It may be argued, if the time permitted to write this Declaration had been sufficient, that separate Benchmarks should have been calculated for each officer, however, it may be seen in Professor Donohue's Exhibit 8 or in his supporting documents that his benchmarks are very consistent across different conditions, or across Valkyrie officers compared to Non-Valkyrie officers, within the broader categories Non-drug state/Non-rental and Drug state/Rental. Calculating individual benchmarks for individual officers would have made only de minimus differences in the results of the analyses because the Illinois incidents account for such a large proportion of all Non-drug state/Non-rental incidents and Texas and California incidents account for such a large proportion of all Drug state/Rental incidents.)

7. Based upon the 138 individual Valkyrie officers for whom data were included in Professor Donohue's database, if the number of incidents were sufficiently large for every one of the 138 officers to permit the use of the normal approximation, one would expect to find a statistically significant difference between the observed and expected percentage of Hispanic surnames, by chance, for 5% of the 138 officers, i.e., approximately seven officers. More specifically, one would expect approximately one-half of the chance findings of statistical significance to be in the negative

direction (too few Hispanic surnames) and one would expect approximately one-half of the chance findings of statistical significance to be in the positive direction (too many Hispanic surnames).

8. The results of the first analysis are shown in Exhibit 1. The columns of the Exhibit contain district (DIST), officer number (OFF), Non-drug state/Non-rental percentage Hispanic (IND_0P), Non-drug state/Non-rental number of incidents (IND_0N), Drug state/Rental percentage Hispanic (IND_1P), Drug state/Rental number of incidents (IND_1N), Non-drug state/Non-rental number of standard deviations (IND_0SD), Drug state/Rental number of standard deviations (IND_1SD), Non-drug state/Non-rental cumulative probability associated with number of standard deviations (P_IND_0), Drug state/Rental cumulative probability associated with number of standard deviations (P_IND_1), Non-drug state/Non-rental statistical significance (S_IND_0), and Drug state/Rental statistical significance (S_IND_1).

9. Considering the Non-drug state/Non-rental results in Exhibit 1, 64 of the 138 officers have statistically insignificant percentages Hispanic when compared to the benchmark. However, 36 officers have statistically significantly lower percentages Hispanic compared to the benchmark and 38 officers have statistically significantly higher percentages

Hispanic compared the benchmark. The only reasonable interpretation of the large number (36 of 138) of Valkyrie officers for whom there is a statistically significantly lower percentage of Hispanic surnames compared to Professor Donohue's benchmark and the large number (38 of 138) of Valkyrie officers for whom there is a statistically significantly higher percentage of Hispanic surnames compared to Professor Donohue's benchmark is that 1) Professor Donohue's benchmark for Non-drug state/Non-rental incidents is too high and 2) even compared to this inflated benchmark, there are 38 Valkyrie officers for whom Hispanic surnames are statistically significantly overrepresented.

10. Considering the Drug state/Rental results in Exhibit 1, 32 of the 138 officers have too few incidents to permit the use of the normal approximation, 64 of the remaining 106 officers have statistically insignificant percentages Hispanic when compared to the benchmark. However, 18 of the 106 officers have statistically significantly lower percentages Hispanic compared to the benchmark and 24 of the 106 officers have statistically significantly higher percentages Hispanic compared the benchmark. The only reasonable interpretation of the large number (18 of 106) of Valkyrie officers for whom there is a statistically significantly lower percentage of Hispanic surnames compared to

Professor Donohue's benchmark and the large number (24 of 106) of Valkyrie officers for whom there is a statistically significantly higher percentage of Hispanic surnames compared to Professor Donohue's benchmark is that 1) Professor Donohue's benchmark for Drug state/Rental incidents is too high and 2) even compared to this inflated benchmark, there are 24 Valkyrie officers for whom Hispanic surnames are statistically significantly over-represented.

11. Considering the combination of results from both Non-drug state/Non-rental and Drug state/Rental incidents, there are 12 Valkyrie officers for whom the percentage of Hispanic surnames is statistically significantly lower than the benchmarks for both Non-drug state/Non-rental and Drug state/Rental incidents and there are 20 Valkyrie officers for whom the percentage of Hispanic surnames is statistically significantly higher than the benchmarks for both Non-drug state/Non-rental and Drug state/Rental incidents.

12. The Defendants' distinction between Non-drug state/Non-rental incidents and Drug state/Rental incidents does not account for the greater than expected percentage of Hispanic Surnames for individual Valkyrie officers because the greater than expected percentage of Hispanic Surnames for individual Valkyrie officers occurs within both sets of incidences. Rather, the results of

analyses support my earlier conclusion that some individual Valkyrie officers target Hispanic surnamed drivers.

13. An inspection of Exhibit 1 reveals that some districts contain a disproportionate number of Valkyrie officers who target Hispanic surnamed drivers. For example, see District 13.

14. My second analysis considered the percentages of Hispanic surnames among incidents for each of the six license plate state identified by Professor Donohue as a Drug source state. I compared the observed percentage of Hispanic surnames for incidents involving each of the six states separately to the benchmark percentage Hispanic surnames used by Professor Donohue. Again the analyses were conducted on incidents on Interstate highways, during daylight hours, for individual Valkyrie officers. (There is no possible argument regarding calculating a different benchmark for each officer, because the analysis for each of the six states is conducted separately. Therefore, the benchmark for each state must be the same for each officer.) The same statistics that were used in the first analysis were calculated in this analysis. However, in this analysis there are many more instances in which the expected number of Hispanic incidents is not sufficiently large to use the normal approximation.

15. The results are shown in Exhibit 2. The columns in

Exhibit 2 contain district number (dist), officer number (off), Arizona observed percentage Hispanic (azp), Arizona number of incidents (azn), California observed percentage Hispanic (cap), California number of incidents (can), Florida observed percentage Hispanic (flp), Florida number of incidents (fln), New Mexico observed percentage Hispanic (nmp), New Mexico number of incidents (nmn), New York observed percentage Hispanic (nyp), New York number of incidents (byn), Texas observed percentage Hispanic (txp), Texas number of incidents (txn), Arizona standard deviations (azsd), California standard deviations (casd), Florida standard deviations (flsd), New Mexico standard deviations (nmsd), New York standard deviations (nysd), Texas standard deviations (txsd), cumulative probability associated with Arizona standard deviations (p_azsd), cumulative probability associated with California standard deviations (p_casd), cumulative probability associated with Florida standard deviations (p_flsd), cumulative probability associated with New Mexico standard deviations (p_nmsd), cumulative probability associated with New York standard deviations (p_nysd), cumulative probability associated with Texas standard deviations (p_txsd), statistical significance associated with Arizona standard deviations (s_azsd), statistical significance associated with California standard deviations (s_casd), statistical significance associated

with Florida standard deviations (s_flsd) , Statistical significance associated with New Mexico standard deviations (s_nmsd) , statistical significance associated with New York standard deviations (s_nysd) , and statistical significance associated with Texas standard deviations (s_txsd) .

16. The results of the analyses contained in Exhibit 2 are clear. There are 82 Valkyrie officers for whom there are a sufficient number of incidents with Texas license plates to use the normal approximation to the binomial distribution. There is a statistically significant pattern of targeting Hispanic drivers of Vehicles with Texas license plates for 32 of the 82 Valkyrie officers, when compared to Professor Donohue's benchmark of 25.55% for vehicles with Texas license plates. There are no results for other drug source states with statistically significant positive results. Defendants' conclusion that the valkyrie officers target Drug state/Rental vehicles in refuted by the analyses for individual officers. Thirty-two individual Valkyrie officers target vehicles driven by Hispanic surnamed drivers.

I verify under penalty of perjury that the foregoing is true and correct.



MARTIN M. SHAPIRO

Executed on this 12th day of July, 1999.

Exhibit 1

Case Summaries

	DIST	OFF	IND_0P	IND_ON	IND_1P	IND_1N	IND OSD	IND_1SD	P_IND_0	P_IND_1
1		4	1372	.07	452	.00	2	.89	.3714147	
2		4	2646	.07	300	.20	5	.73	.4664973	
3		4	2777	.08	443	.27	15	1.77	.0767661	
4		4	3254	.08	613	.31	106	2.08	.0373584	.0249164
5		4	3262	.05	756	.14	21	-1.16	.2476952	
6		4	3285	.11	1103	.27	147	6.98	1.47	.0000000 .1416020
7		4	3689	.10	455	.27	66	3.59	.98	.0003343 .3246792
8		4	3729	.06	607	.33	57	.00	2.01	1.0000000 .0445126
9		4	3838	.07	1336	.35	130	1.54	3.59	.1243684 .0003370
10		4	4051	.12	25	.00	3			
11		4	4174	.06	758	.30	37	.00	1.18	1.0000000 .2387523
12		5	1737	.05	184	.00	1	-.57	.5684835	
13		5	1818	.09	883	.13	54	3.75	-1.59	.0001783 .1110216
14		5	2841	.05	1415	.20	51	-1.58	-.34	.1137695 .7327446
15		5	3045	.05	687	.18	66	-1.10	-.78	.2704828 .4348924
16		5	3284	.05	1347	.00	12	-1.54		.1228291
17		5	3669	.04	476	.09	22	-1.83		.0665799
18		5	3689	.03	107	.20	5	-1.30		.1920088
19		5	3771	.04	1778	.15	48	-3.55	-1.17	.0003918 .2428673
20		5	3845	.04	1679	.18	39	-3.45	-.60	.0005702 .5483450
21		5	3874	.05	2169	.22	405	-1.96	.01	.0502294 .9922446
22		5	4305	.03	893	.11	55	-3.77	-1.97	.0001639 .0492405
23		5	4361	.07	1765	.20	166	1.77	-.62	.0773510 .5378481
24		6	3084	.07	1308	.30	76	1.52	1.69	.1283841 .0913219
25		6	3158	.05	1018	.17	35	-1.34	-.71	.1797910 .4767750
26		6	3512	.05	903	.25	57	-1.26	.55	.2064590 .5818912
27		6	3717	.05	1327	.16	62	-1.53	-1.14	.1256437 .2554862
28		6	3824	.04	245	.00	8	-1.32		.1881322
29		6	3858	.13	717	.21	238	7.88	-.37	.0000000 .7150281
30		6	3927	.15	1312	.35	598	13.71	7.69	.0000000 .0000000
31		6	3973	.06	2463	.34	135	.00	3.37	1.0000000 .0007443
32		6	4225	.07	1398	.23	167	1.57	.32	.1159631 .7502392
33		6	4444	.03	786	.12	41	-3.54	-1.54	.0004062 .1227725
34		7	1623	.06	3112	.14	375	.00	-3.73	1.0000000 .0001900
35		7	1808	.06	411	.19	88	.00	-.68	1.0000000 .4996117

Case Summaries

	DIST	OFF	IND_0P	IND_ON	IND_1P	IND_1N	IND_0SD	IND_1SD	P_IND_0	P_IND_1
36	7	3077	.02	1814	.00	49	-7.16	-3.72	.0000000	.0002027
37	7	3210	.04	235	.10	21	-1.29	.	.1974032	.
38	7	3370	.05	1205	.13	136	-1.46	-2.53	.1444521	.0114373
39	7	3724	.03	1662	.06	86	-5.14	-3.58	.0000003	.0003452
40	7	3799	.09	1483	.19	568	4.86	-1.72	.0000012	.0863182
41	7	3864	.05	1493	.13	148	-1.62	-2.64	.1042737	.0083332
42	7	3915	.07	1918	.23	373	1.84	.48	.0655877	.6342628
43	9	1495	.05	82	.00	5	.	.	.	.
44	9	1803	.04	198	.05	19	-1.18	.	.2367423	.
45	9	3138	.04	584	.27	62	-2.03	.95	.0421552	.3397921
46	9	3151	.04	386	.17	77	-1.65	-1.06	.0985364	.2912773
47	9	3934	.09	560	.35	93	2.98	3.03	.0028387	.0024275
48	9	3939	.07	835	.22	97	1.21	.00	.2244184	.9962045
49	9	3969	.11	752	.28	50	5.76	1.03	.0000000	.3039505
50	9	4021	.11	320	.23	61	3.76	.19	.0001697	.8474389
51	9	4034	.12	941	.27	157	7.74	1.52	.0000000	.1287565
52	9	4051	.09	1337	.28	203	4.61	2.07	.0000040	.0383252
53	9	4242	.05	529	.12	26	-.97	-1.23	.3335603	.2190969
54	9	4266	.05	297	.15	68	-.72	-1.39	.4687344	.1645230
55	9	4322	.03	461	.18	11	-2.71	.	.0067681	.
56	9	4337	.14	588	.34	206	8.16	4.17	.0000000	.0000310
57	9	4340	.09	483	.17	114	2.77	-1.28	.0055729	.1991132
58	9	4347	.05	1196	.27	82	-1.45	1.10	.1459600	.2722936
59	9	4444	.02	525	.23	30	-3.85	.13	.0001166	.8926762
60	10	1550	.02	684	.13	23	-4.40	-1.04	.0000109	.2983199
61	10	3039	.00	14	1.00	1	.	.	.	.
62	10	3120	.03	230	.36	11	-1.91	.	.0557739	.
63	10	3554	.02	1274	.08	40	-6.00	-2.14	.0000000	.0327408
64	10	3590	.06	1304	.32	91	.00	2.31	1.0000000	.0209803
65	10	3604	.07	1111	.27	171	1.40	1.59	.1611148	.1128971
66	10	3664	.05	1526	.24	124	-1.64	.54	.1005209	.5869805
67	10	3829	.04	1086	.19	68	-2.77	-.59	.0055893	.5528822
68	10	3965	.01	271	.14	7	-3.46	.	.0005392	.
69	10	3989	.03	1342	.21	70	-4.62	-.20	.0000038	.8430376
70	10	4125	.03	1289	.16	50	-4.53	-1.02	.0000059	.3071748

Case Summaries

	DIST	OFF	IND_0P	IND_DN	IND_1P	IND_1N	IND_0SD	IND_1SD	P_IND_0	P_IND_1
71		11	.06	1053	.26	31	.00	.54	1.0000000	.5888332
72		11	.01	2246	.00	28	-7.41	-2.81	.0000000	.0049730
73		11	.07	2709	.21	203	1.28	-.34	.2012607	.7359676
74		11	.07	3110	.21	187	1.22	-.32	.2219374	.7462130
75		11	.02	3128	.18	130	-5.53	-1.10	.0000000	.2731282
76		11	.03	3550	.11	9	-1.70	.	.0888425	.
77		11	.08	3565	.17	48	2.04	-.83	.0414568	.4047193
78		11	.02	3835	.09	46	-4.62	-2.13	.0000038	.0335027
79		11	.03	3962	.21	19	-2.25	.	.0247288	.
80		11	.02	4083	.13	94	-6.35	-2.10	.0000000	.0355030
81		11	.15	4168	.28	472	12.37	3.16	.0000000	.0015859
82		11	.03	4184	.04	27	-2.21	-2.26	.0271114	.0240565
83		11	.07	4194	.20	221	1.25	-.71	.2128558	.4771829
84		11	.03	4314	.17	65	-2.28	-.97	.0227702	.3322410
85		11	.13	4375	.31	331	9.21	3.96	.0000000	.0000740
86		11	.12	4398	.24	117	4.33	.53	.0000147	.5977344
87		11	.09	4435	.15	109	2.58	-1.76	.0100075	.0784305
88		11	.12	4634	.15	27	2.39	-.88	.0167078	.3810912
89	12	1590	.02	149	.05	19	-2.05	.	.0400963	.
90	12	1831	.02	614	.10	71	-4.17	-2.44	.0000309	.0147772
91	12	2545	.02	219	.00	21	-2.49	.	.0128224	.
92	12	3031	.02	612	.06	49	-4.16	-2.70	.0000318	.0069052
93	12	3039	.12	133	.13	48	2.91	-1.50	.0036245	.1329738
94	12	3235	.08	770	.28	123	2.33	1.61	.0196356	.1068852
95	12	3550	.07	71	.11	9	.	.	.	.
96	12	3650	.02	1599	.15	131	-6.72	-1.93	.0000000	.0536923
97	12	3772	.11	705	.29	279	5.58	2.83	.0000000	.0046298
98	12	3822	.08	1180	.21	222	2.89	-.35	.0038723	.7243693
99	12	3828	.15	994	.36	423	11.93	6.96	.0000000	.0000000
100	12	3853	.05	1095	.24	121	-1.39	.54	.1641633	.5915402
101	12	3876	.00	44	.00	2	.	.	.	.
102	12	3976	.12	596	.31	171	6.16	2.85	.0000000	.0043926
103	12	4003	.02	1014	.08	184	-5.36	-4.58	.0000001	.0000047
104	12	4024	.03	1049	.15	75	-4.09	-1.46	.0000441	.1443416
105	12	4127	.13	2250	.26	794	13.96	2.74	.0000000	.0062273

Case Summaries

	DIST	OFF	IND_OP	IND_ON	IND_1P	IND_1N	IND OSD	IND_1SD	P_IND_0	P_IND_1	
106	12	4371	.04	187	.16	44	-1.15	-.96	.2502126	.3380928	
107	13	1890	.00	225	.07	14	-3.78		.0001545		
108	13	1924	.18	253	.41	83	8.02	4.18	.0000000	.0000286	
109	13	3714	.10	488	.23	143	3.71	.29	.0002032	.7683272	
110	13	3789	.28	159	.52	93	11.66	6.99	.0000000	.0000000	
111	13	3792	.03	530	.17	41	-2.90	-.77	.0036885	.4412562	
112	13	3860	.10	1297	.29	284	6.06	2.86	.0000000	.0042769	
113	13	3872	.26	235	.55	128	12.89	9.02	.0000000	.0000000	
114	13	3936	.14	1000	.30	287	10.64	3.28	.0000000	.0010338	
115	13	4026	.26	376	.54	197	16.30	10.85	.0000000	.0000000	
116	13	4083	.00	2	.	.	.	.	.	.
117	13	4184	.10	323	.32	126	3.02	2.72	.0025082	.0066033	
118	13	4214	.08	347	.19	101	1.57	-.72	.1172752	.4695268	
119	13	4294	.23	299	.42	154	12.36	6.00	.000000Q0	.0000000	
120	13	4363	.04	189	.21	43	-1.16	-.16	.2476952	.8766694	
121	13	4371	.02	82	.20	15	.	.	.	.
122	13	4474	.09	171	.41	22	1.65	.	.0990833	.	
123	17	1651	.05	614	.09	43	-1.04	-2.06	.2975224	.0398296	
124	17	1710	.01	287	.00	5	-3.56	.	.0003692	.	
125	17	1945	.06	1903	.22	332	.00	.01	1.0000000	.9929783	
126	17	2429	.03	309	.05	22	-2.22	.	.0266165	.	
127	17	3589	.10	2131	.20	946	7.76	-1.47	.0000000	.1413744	
128	17	3755	.04	609	.08	62	-2.08	-2.66	.0379845	.0078522	
129	17	3830	.05	1428	.10	201	-1.59	-4.10	.1121230	.0000410	
130	17	3967	.07	2057	.21	754	1.91	-.65	.0565487	.5157798	
131	17	3987	.13	1035	.26	833	9.47	2.80	.0000000	.0050796	
132	18	3062	.02	286	.13	31	-2.84	-1.21	.0044553	.2272599	
133	18	3191	.03	127	.17	6	-1.42	.	.1552092	.	
134	18	3376	.06	957	.09	91	.00	-2.99	1.0000000	.0027876	
135	18	3958	.03	100	.25	4	-1.26	.	.2072145	.	
136	18	3971	.03	541	.23	35	-2.93	.15	.0033503	.8841355	
137	18	4222	.05	204	.12	34	-.60	-1.41	.5481859	.1599206	
138	18	4353	.05	170	.33	6	-.55	.	.5835810	.	
Total	N	138	138	138	138	137	137	131	106	131	106

Case Summaries

	S_IND_0	S_IND_1
1	insignif	
2	insignif	
3	insignif	
4	sign_pos	sign_pos
5	insignif	
6	sign_pos	insignif
7	sign_pos	insignif
8	insignif	sign_pos
9	insignif	sign_pos
10	insignif	
11	insignif	insignif
12	insignif	
13	sign_pos	insignif
14	insignif	insignif
15	insignif	insignif
16	insignif	
17	insignif	
18	insignif	
19	sign_neg	insignif
20	sign_neg	insignif
21	insignif	insignif
22	sign_neg	sign_neg
23	insignif	insignif
24	insignif	insignif
25	insignif	insignif
26	insignif	insignif
27	insignif	insignif
28	insignif	
29	sign_pos	insignif
30	sign_pos	sign_pos
31	insignif	sign_pos
32	insignif	insignif
33	sign_neg	insignif
34	insignif	sign_neg
35	insignif	insignif

Case Summaries

	S_IND_0	S_IND_1
36	sign_neg	sign_neg
37	insignif	
38	insignif	sign_neg
39	sign_neg	sign_neg
40	sign_pos	insignif
41	insignif	sign_neg
42	insignif	insignif
43	insignif	
44	insignif	
45	sign_neg	insignif
46	insignif	insignif
47	sign_pos	sign_pos
48	insignif	insignif
49	sign_pos	insignif
50	sign_pos	insignif
51	sign_pos	insignif
52	sign_pos	sign_pos
53	insignif	insignif
54	insignif	insignif
55	sign_neg	
56	sign_pos	sign_pos
57	sign_pos	insignif
58	insignif	insignif
59	sign_neg	insignif
60	sign_neg	insignif
61	insignif	
62	insignif	
63	sign_neg	sign_neg
64	insignif	sign_pos
65	insignif	insignif
66	insignif	insignif
67	sign_neg	insignif
68	sign_neg	
69	sign_neg	insignif
70	sign_neg	insignif

Case Summaries

	S_IND_0	S_IND_1
71	insignif	insignif
72	sign_neg	sign_neg
73	insignif	insignif
74	insignif	insignif
75	sign_neg	insignif
76	insignif	
77	sign_pos	insignif
78	sign_neg	sign_neg
79	sign_neg	
80	sign_neg	sign_neg
81	sign_pos	sign_pos
82	sign_neg	sign_neg
83	insignif	insignif
84	sign_neg	insignif
85	sign_pos	sign_pos
86	sign_pos	insignif
87	sign_pos	insignif
88	sign_pos	insignif
89	sign_neg	
90	sign_neg	sign_neg
91	sign_neg	
92	sign_neg	sign_neg
93	sign_pos	insignif
94	sign_pos	insignif
95	insignif	
96	sign_neg	insignif
97	sign_pos	sign_pos
98	sign_pos	insignif
99	sign_pos	sign_pos
100	insignif	insignif
101	insignif	
102	sign_pos	sign_pos
103	sign_neg	sign_neg
104	sign_neg	insignif
105	sign_pos	sign_pos

Case Summaries

		S_IND_0	S_IND_1
106		insignif	insignif
107		sign_neg	
108		sign_pos	sign_pos
109		sign_pos	insignif
110		sign_pos	sign_pos
111		sign_neg	insignif
112		sign_pos	sign_pos
113		sign_pos	sign_pos
114		sign_pos	sign_pos
115		sign_pos	sign_pos
116		insignif	
117		sign_pos	sign_pos
118		insignif	insignif
119		sign_pos	sign_pos
120		insignif	insignif
121		insignif	
122		insignif	
123		insignif	sign_neg
124		sign_neg	
125		insignif	insignif
126		sign_neg	
127		sign_pos	insignif
128		sign_neg	sign_neg
129		insignif	sign_neg
130		insignif	insignif
131		sign_pos	sign_pos
132		sign_neg	insignif
133		insignif	
134		insignif	sign_neg
135		insignif	
136		sign_neg	insignif
137		insignif	insignif
138		insignif	
Total	N		138

Exhibit 2

	dist	off	azp	azn	cap	can	flp	fln	nmp	nmn	hyp	yn	txp	txn	azsd	casd
1	4	1372	.	.	.	.	.00	1	.	.	.	.	.00	1	.	.
2	4	2646	.00	1	1.00	1	.00	1	.	.	.	.	.00	1	.	.
3	4	2777	.	.	.25	4	.00	1	.	.	.	.00	2	.38	8	.
4	4	3254	.20	5	.22	23	.15	13	.	.	.	.25	4	.40	60	-.42
5	4	3262	.	.	.00	3	.00	1	.	.	.	.	.	.19	16	.
6	4	3285	.00	6	.27	15	.04	25	.14	7	.00	1	.37	93	.	.
7	4	3689	.	.	.29	7	.27	11	1.00	1	.00	2	.27	45	.	.
8	4	3729	.	.	.43	7	.00	5	.	.	.00	3	.43	37	.	.
9	4	3838	.00	2	.23	22	.06	18	.00	1	.33	3	.46	84	.	-.30
10	4	4051	.	.	.	.	.00	2	.	.	.	.	.00	1	.	.
11	4	4174	.	.	.00	7	.00	4	.00	3	.	.	.50	22	.	.
12	5	1737	.	.	.00	1	.	.	.	.	.	.	.	.	.	.
13	5	1818	.00	3	.07	14	.00	8	.50	2	.00	3	.24	21	.	.
14	5	2841	.	.	.10	10	.11	9	.50	2	.00	4	.29	24	.	.
15	5	3045	.00	2	.18	22	.00	6	.00	2	.00	1	.26	31	.	-.84
16	5	3284	.	.	.00	3	.00	2	.	.	.00	2	.00	3	.	.
17	5	3669	.	.	.13	8	.00	2	.00	1	.00	1	.13	8	.	.
18	5	3689	.	.	.00	1	.00	1	.	.	.00	1	.50	2	.	.
19	5	3771	.00	4	.13	15	.14	7	.	.	.17	6	.23	13	.	.

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	f1sd	nmsd	nysd	txsd	p_azsd	p_casd	p_f1sd	p_nmsd	p_nysd	p_txsd
1
2
3
4	.	.	.	2.57	.	.67398020102775
5
6	.	.	.	2.53	.	.	.	.	.	.0113498
722	.	.	.	.	.	.8235189
8	.	.	.	2.43	.	.	.	.	.	.0149450
9	.	.	.	4.30	.	.7609012	.	.	.	.0000173
10
11	.	.	.	2.63	.	.	.	.	.	.0085527
12
13	.	.	.	-.16	.	.	.	.	.	.8706289
1439	.	.	.	.	.	.6983694
1506	.	.4008899	.	.	.	.9541893
16
17
18
19

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
1						
2						
3						
4		insignif				sign_pos
5						
6						sign_pos
7						insignif
8						sign_pos
9		insignif				sign_pos
10						
11						sign_pos
12						
13						Insignif
14						Insignif
15		insignif				Insignif
16						
17						
18						
19						

dist	off	azp	azn	cap	can	fip	fln	nmp	nmm	typ	nym	txp	txn	azsd	casd
20	5	3845	.00	1	.13	15	.50	2	.	.00	1	.21	19	-1.62	
21	5	3874	.06	16	.19	108	.13	32	.05	22	.06	18	.30	195	
22	5	4305	.25	4	.00	11	.00	6	.	.	.14	7	.22	18	
23	5	4361	.00	7	.12	34	.00	13	.25	8	.00	8	.33	79	-1.84
24	6	3084	.50	2	.20	10	.23	13	.00	3	1.00	1	.35	37	
25	6	3158	1.00	1	.00	12	.00	8	.	.	.00	1	.50	10	
26	6	3512	1.00	1	.14	7	.08	12	1.00	3	.	.	.24	33	
27	6	3717	.00	4	.00	8	.00	12	.00	3	.00	2	.31	32	
28	6	3824	.00	1	.00	2	.00	2	.	.	.	.	.00	3	
29	6	3858	.07	14	.17	41	.06	31	.13	8	.00	7	.32	126	-1.29
30	6	3927	.09	47	.27	81	.10	49	.32	34	.22	9	.48	322	.24
31	6	3973	.00	10	.11	18	.08	13	.00	3	.00	4	.52	77	
32	6	4225	.00	7	.15	20	.00	14	.25	8	.00	7	.31	97	-1.11
33	6	4444	.00	1	.00	9	.00	9	.	.	.00	2	.25	16	
34	7	1623	.19	21	.19	156	.06	50	.00	7	.09	44	.16	61	-1.95
35	7	1808	.38	8	.29	35	.00	6	.17	6	.29	7	.06	17	.43
36	7	3077	.00	4	.00	20	.00	11	.00	1	.00	5	.00	6	-2.64
37	7	3210	.50	2	.08	12	.00	5	.	.	.00	1	.00	1	-1.45
38	7	3370	.29	7	.18	66	.00	20	.00	2	.00	16	.16	19	

	f1sd	nmsd	nysd	tksd	p_azsd	p_casd	p_f1sd	p_nmsd	p_nysd	p_tksd
20
21	.	-3.21	.	1.42	.	.1044150	.	.0013395	.	.1542192
221289525
23	1.52	.	.0652552	.	.	.1875144
24	1.32	.	.	.	.	.
25
26	.	.	.	-20	.	.	.	.	.	.8382321
2771	.	.	.	.	.	.
284796431
29	.	.	.	1.66	.	.1959961	.	.	.	.0969075
30	-46	-.75	.	9.24	.0860238	.8115014	.6422089	.4547355	.	.0000000
31	.	.	.	5.32	.	.	.	.	.	.0000001
32	.	.	.	1.23	.	.2681115	.	.	.	.2184326
33
34	-1.33	.	-.67	-1.71	.	.0509876	.1820553	.	.5039629	.0872336
356693348	.	.	.	.
360082947	.	.	.	.
37
381456749	.	.	.	.

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
20		"				
21		insignif		sign_neg		insignif
22						
23		insignif				insignif
24						insignif
25						
26						insignif
27						insignif
28						
29		insignif				insignif
30	insignif	insignif	insignif	insignif		sign_pos
31						sign_pos
32		insignif				insignif
33						
34			insignif		insignif	insignif
35		insignif				
36		sign_neg				
37						
38		insignif				

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	dist	off	azp	azn	cap	can	flp	fln	nmp	nmn	nyp	yn	txp	txn	azsd	casd
39	7	3724	.00	3	.10	42	.13	8	.00	2	.00	11	.00	13	.	-2.35
40	7	3799	.12	51	.22	254	.10	61	.19	21	.21	34	.22	99	-1.24	-1.40
41	7	3864	.18	11	.16	73	.00	14	.00	8	.10	20	.18	17	.	-1.92
42	7	3915	.31	36	.28	176	.19	26	.15	13	.08	40	.20	56	1.88	.65
43	9	1495	.	.	.00	2	.00	1	.	.	.	.	.00	2	.	.
44	9	1803	.00	1	.00	1	.00	4	.	.	.	.	.09	11	.	.
45	9	3138	.00	3	.27	11	.00	5	.17	6	.00	1	.39	33	.	.
46	9	3151	.08	12	.12	17	.00	7	.00	6	.00	1	.33	30	.	.
47	9	3934	.20	5	.31	13	.00	7	.83	6	.50	2	.38	58	.	.
48	9	3939	.08	12	.00	14	.08	12	.50	2	.00	2	.31	54	.	.
49	9	3969	.	.	.00	11	.00	7	.50	2	.00	2	.46	28	.	.
50	9	4021	.00	2	.00	5	.00	1	.67	3	.00	2	.29	42	.	.
51	9	4034	.00	11	.21	24	.00	10	.50	6	.00	3	.33	94	.	-54
52	9	4051	.17	6	.12	26	.06	16	.13	8	.00	1	.38	133	.	-1.61
53	9	4242	.25	4	.00	6	.00	3	.50	2	.00	1	.00	6	.	.
54	9	4266	.17	6	.29	7	.29	7	.00	2	.00	1	.11	35	.	.
55	9	4322	.	.	.	.	.00	1	.	.	.	.	.22	9	.	.
56	9	4337	.16	19	.18	22	.14	14	.19	16	.67	3	.47	120	.	-.84
57	9	4340	.29	7	.10	20	.00	9	.00	6	.00	2	.26	58	.	-1.62

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	flsd	nmsd	nysd	txsd	p_azsd	p_casd	p_flsd	p_nmsd	p_nysd	p_txsd
390190255
40	-.52	-1.81	.	-.81	.2150664	.1621036	.6041851	.0697673	.	.4180119
410547886	.	.	.	.
42	.	.	.	-.95	.0604714	.5127224	.	.	.	.3409611
43
44
45	.	.	.	1.77	.	.	.	.	.	.0764706
4694	.	.	.	.	.	.3494804
47	.	.	.	2.17	.	.	.	.	.	.0297066
4892	.	.	.	.	.	.3584829
49	.	.	.	2.48	.	.	.	.	.	.0130977
5051	.	.	.	.	.	.6082003
51	.	.	.	1.66	.	.5880587	.	.	.	.0976971
52	.	.	.	3.29	.	.1069404	.	.	.	.0009946
53
54	.	.	.	-1.97	.	.	.	.	.	.0484220
55
56	.	-1.58	.	5.39	.	.4008899	.	.1134485	.	.0000001
5708	.	.1056140	.	.	.	.9373686

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
39		sign_neg				
40	Insignif	Insignif	Insignif	Insignif		Insignif
41		Insignif				
42	Insignif	Insignif				Insignif
43						
44						
45						Insignif
46						Insignif
47						sign_pos
48						Insignif
49						sign_pos
50						Insignif
51		Insignif				Insignif
52		Insignif				sign_pos
53						
54						sign_neg
55						
56		Insignif		Insignif		sign_pos
57		Insignif				Insignif

	dist	off	azp	azn	cap	can	flp	fin	nmp	nmn	nyp	nyn	txp	txn	azsd	casd
58	9	4347	.25	8	.13	8	.00	9	.00	4	.00	4	.41	46		
59	9	4444	.00	1	.00	3	.00	5	.50	2	1.00	1	.27	11		
60	10	1550	1.00	1	.00	4	.00	11	.	.	.00	1	.33	6		
61	10	3039	.	.	1.00	1	.	.	.	.	.	.	.	.
62	10	3120	.	.	.00	2	.00	2	.	.	.	.	.67	6		
63	10	3554	.00	1	.00	11	.00	14	.	.	.00	1	.23	13		
64	10	3590	.33	6	.14	7	.00	13	.00	2	.00	1	.44	59		
65	10	3604	.00	5	.00	17	.10	30	.00	5	.00	4	.41	108		
66	10	3664	.00	3	.00	9	.16	25	.00	1	.00	2	.34	77		
67	10	3829	.	.	.00	8	.11	19	.	.	.00	1	.29	38		
68	10	3965	.	.	.00	1	.00	2	.	.	.00	1	.33	3		
69	10	3989	.	.	.00	8	.00	14	.	.	.00	1	.31	45		
70	10	4125	.00	1	.00	10	.00	11	.67	3	.00	3	.29	21		
71	11	1053	.20	5	.43	7	.00	8	.00	1	.00	1	.50	8		
72	11	2246	.00	2	.00	7	.00	7	.00	1	.00	3	.00	7		
73	11	2709	.00	16	.16	44	.25	20	.40	10	.00	14	.27	93	-1.49	
74	11	3110	.00	13	.09	45	.11	9	.27	11	.09	11	.31	91	-2.58	
75	11	3128	.13	8	.21	39	.13	15	.00	5	.08	12	.23	48	-.69	
76	11	3550	.	.	.00	4	.	.	.00	1	.00	2	.50	2		

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	flsd	nmsd	nysd	txsd	p_azsd	p_casd	p_flsd	p_nmsd	p_nysd	p_txsd
58	.	.	.	2.400162794
59
60
61
62
63
64	.	.	.	3.25	.	.	.	.	.	.0011567
65	.	.	.	3.68	.	.	.	.	.	.0002320
66	.	.	.	1.70	.	.	.	.	.	.0891123
6749	.	.	.	.	.	.6258178
68
6984	.	.	.	.	.	.4018888
7036	.	.	.	.	.	.7169828
71
72
7332	.	.1359501	.	.	.	.7485034
74	.	.	.	1.19	.	.0098635	.	.	.	.2332471
75	.	.	.	-.41	.	.4898969	.	.	.	.6854241
76

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
58		|				<i>sign_pos</i>
59						
60						
61						
62						
63						
64						<i>sign_pos</i>
65						<i>sign_pos</i>
66						<i>insignif</i>
67						<i>insignif</i>
68						
69						<i>insignif</i>
70						<i>insignif</i>
71						
72						
73		<i>insignif</i>				<i>insignif</i>
74		<i>sign_neg</i>				<i>insignif</i>
75		<i>insignif</i>				<i>insignif</i>
76						

	dist	off	azp	azn	cap	can	flp	fln	nmp	nmn	nyp	nyt	txp	txn	azsd	casd
77	11	3565	.00	5	.19	16	.00	2	.67	3	.	.	.14	22	.	.
78	11	3835	.00	4	.00	5	.00	4	.50	2	.00	5	.12	25	.	.
79	11	3962	.	.	.00	1	.00	5	.00	1	.00	1	.40	10	.	.
80	11	4083	.10	10	.07	14	.05	20	.00	4	.00	4	.23	40	.	.
81	11	4168	.13	97	.25	109	.29	24	.22	41	.11	19	.41	166	-1.46	-20
82	11	4184	.00	1	.00	3	.00	6	.00	2	.00	4	.10	10	.	.
83	11	4194	.10	20	.20	51	.11	19	.20	20	.23	13	.24	94	.	-95
84	11	4314	.00	8	.13	15	.00	2	.00	4	.00	2	.27	33	.	.
85	11	4375	.12	51	.24	72	.14	21	.13	16	.33	12	.46	146	-1.24	-36
86	11	4398	.06	17	.24	29	.18	11	.00	2	.00	4	.35	48	.	-23
87	11	4435	.11	19	.17	18	.05	19	.08	12	.20	5	.29	28	.	.
88	11	4634	.17	6	.00	4	.00	2	.00	2	.	.	.23	13	.	.
89	12	1590	.00	2	.00	3	.00	3	.00	2	.00	1	.17	6	.	.
90	12	1831	.00	3	.22	18	.00	12	.00	1	.00	7	.12	26	.	.
91	12	2545	.00	2	.00	2	.00	5	.	.	.00	1	.00	10	.	.
92	12	3031	.00	1	.00	9	.00	11	.20	5	.00	3	.11	19	.	.
93	12	3039	.00	2	.27	11	.00	10	.	.	.00	2	.23	13	.	.
94	12	3235	.00	5	.00	15	.13	15	.50	8	.00	7	.41	69	.	.
95	12	3550	.00	1	.00	1	.00	1	.	.	.	.	.17	6	.	.

	f1sd	nmsd	nysd	txsd	p_azsd	p_casd	p_f1sd	p_nmsd	p_nysd	p_txsd
77	.	.	.	-1.24	.	.	.	.	.	.2141902
78	.	.	.	-1.55	.	.	.	.	.	.1203291
79
80	.	.	.	-37	.	.	.	.	.	.7115471
81	.	-2.14	.	4.56	.1449545	.8412169	.	.0324721	.	.0000050
82
83	.	-1.68	.	-34	.	.3407302	.	.0934084	.	.7304234
8419	.	.	.	.	.	.8485381
85	.	-2.08	.	5.67	.2150664	.7213472	.	.0378237	.	.0000000
86	.	.	.	1.50	.	.8209271	.	.	.	.1333163
8742	.	.	.	.	.	.6755289
88
89
90	.	.	.	-1.58	.	.	.	.	.	.1131580
91
92
93
94	.	.	.	2.94	.	.	.	.	.	.0032551
95

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
77						Insignif
78						Insignif
79						
80						Insignif
81	Insignif	Insignif		sign_neg		sign_pos
82						
83		Insignif		Insignif		Insignif
84						Insignif
85	Insignif	Insignif		sign_neg		sign_pos
86		Insignif				Insignif
87						Insignif
88						
89						
90						Insignif
91						
92						
93						
94						sign_pos
95						

	dist	off	azp	azn	cap	can	flp	fln	nmp	nmn	nyp	nyn	txp	txn	azsd	casd
96	12	3650	.00	3	.09	11	.00	31	.	.	.00	5	.23	78	.	.
97	12	3772	.33	6	.28	18	.11	47	.22	9	.00	6	.41	157	.	.
98	12	3822	.17	18	.11	38	.12	34	.30	10	.00	12	.35	85	-2.09	.
99	12	3828	.25	12	.15	33	.09	57	.33	3	.00	8	.48	275	-1.42	.
100	12	3853	.00	1	.15	13	.15	26	.	.	.	.	.29	79	.	.
101	12	3876	.	.	.	.	.00	1	.	.	.	.	.00	1	.	.
102	12	3976	.00	6	.08	12	.09	23	.00	2	.50	2	.39	123	.	.
103	12	4003	.00	12	.02	41	.00	32	.00	4	.14	14	.17	58	-3.49	.
104	12	4024	.00	2	.00	15	.06	16	.	.	.00	4	.26	38	.	.
105	12	4127	.11	47	.19	72	.08	124	.17	29	.03	31	.39	443	-1.37	-1.33
106	12	4371	.	.	.00	3	.08	13	.00	1	.00	1	.25	24	.	.
107	13	1890	.00	1	.	.	.00	7	.	.	.00	1	.20	5	.	.
108	13	1924	.	.	.00	2	.19	16	.	.	.	.	.48	65	.	.
109	13	3714	.00	2	.00	8	.11	19	.25	4	.17	6	.29	98	.	.
110	13	3789	.50	2	.00	2	.20	10	.	.	1.00	1	.57	74	.	.
111	13	3792	.00	1	.00	5	.00	11	.00	1	.00	2	.35	20	.	.
112	13	3860	.00	1	.13	15	.07	75	1.00	1	.00	6	.40	181	.	.
113	13	3872	.	.	1.00	3	.12	17	.	.	.00	1	.64	101	.	.
114	13	3936	.00	2	.00	11	.15	34	.13	8	.00	5	.38	212	.	.

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	flsd	nmsd	nysd	txsd	p_azsd	p_casd	p_flsd	p_nmsd	p_nysd	p_txsd
96	.	.	.	-.526055971
97	-.25	.	.	4.44	.	.	.8061933	.	.	.0000091
98	.	.	.	2.00	.	.0366402	.	.	.	.0457576
99	-.73	.	.	8.54	.	.1548784	.4641491	.	.	.0000000
100	.	.	.	.70	.	.	.	.	.	.4820058
101	.	.	.	.	.	.	.	.	.	.
102	.	.	.	3.42	.	.	.	.	.	.0006258
103	.	.	.	-1.49	.	.0004882	.	.	.	.1354439
104	.	.	.	.06	.	.	.	.	.	.9492865
105	-1.42	-2.35	.	6.49	.1720391	.1848926	.1555203	.0186400	.	.0000000
106	.	.	.	-.06	.	.	.	.	.	.9507389
107	.	.	.	.	.	.	.	.	.	.
108	.	.	.	4.15	.	.	.	.	.	.0000333
109	.	.	.	.78	.	.	.	.	.	.4335820
110	.	.	.	6.20	.	.	.	.	.	.0000000
111973325505
112	-1.37	.	.	4.46	.	.	.1708505	.	.	.0000083
113	.	.	.	8.860000000
114	.	.	.	4.160000323

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	dist	off	azp	azn	cap	can	flp	fin	nmp	nmn	nyp	nyt	txp	txn	azsd	casd
115	13	4026	.00	6	.25	4	.22	36	.00	2	.00	1	.66	148		
116	13	4184	.00	1	.20	5	.08	24	.	.	.33	3	.41	82		
117	13	4214	.00	1	.00	2	.13	15	.00	3	.00	3	.23	74		
118	13	4294	.20	5	.33	6	.00	12	.50	2	1.00	1	.46	123		
119	13	4363	.	.	.00	2	.00	8	.	.	.	.	.27	30		
120	13	4371	.	.	.00	1	.00	4	.	.	.	.	.50	6		
121	13	4474	.	.	.00	1	.00	5	.	.	.	.	.56	16		
122	17	1651	.00	3	.14	14	.00	4	.00	2	.00	7	.18	11		
123	17	1710	.	.	.00	3	.	.	.	.	.00	1	.00	1		
124	17	1945	.15	26	.26	185	.14	22	.20	15	.10	30	.24	29		.05
125	17	2429	.	.	.17	6	.00	5	.00	2	.00	4	.00	4		
126	17	3589	.14	98	.25	389	.07	59	.24	38	.06	69	.23	151	-1.21	-.38
127	17	3755	.00	2	.05	21	.00	8	.00	7	.00	5	.31	13		-2.18
128	17	3830	.10	10	.14	92	.00	16	.20	10	.08	24	.04	24		-2.59
129	17	3967	.20	69	.27	313	.13	77	.14	29	.09	45	.26	118	.26	.47
130	17	3987	.16	117	.28	396	.20	50	.16	37	.12	42	.40	152	-.77	.98
131	18	3062	.00	5	.14	7	.00	4	.	.	.00	1	.17	12		
132	18	3191	.00	1	.00	1	.	.	.00	1	.	.	.33	3		
133	18	3376	.00	9	.25	12	.07	14	.	.	.00	2	.10	42		

	flsd	nmsd	nysd	txsd	p_azsd	p_casd	p_flsd	p_hmsd	p_nysd	p_txsd
115	.	.	.	11.28	.	.	.	.	.	.0000000
116	.	.	.	3.21	.	.	.	.	.	.0013375
11750	.	.	.	.	.	.6149966
118	.	.	.	5.20	.	.	.	.	.	.0000002
11918	.	.	.	.	.	.8555072
120
121
122
123
124	.	-1.45	.	-.19	.	.9603507	.	.1462463	.	.8482257
125
126	-1.21	-1.81	-1.60	-.72	.2256630	.7050870	.2245010	.0710561	.1106390	.4724755
1270291387	.	.	.	.
128	.	.	.	-2.42	.	.0094793	.	.	.	.0154944
129	.22	-2.69	-.68	.11	.7952644	.6392038	.8237145	.0072507	.4991558	.9107605
130	1.69	-2.78	-.06	4.08	.4413338	.3261458	.0903642	.0053927	.9512413	.0000441
131
132
133	.	.	.	-2.31	.	.	.	.	.	.0208542

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
115						sign_pos
116						sign_pos
117						insignif
118						sign_pos
119						insignif
120						
121						
122						
123						
124		insignif		insignif		insignif
125						
126	insignif	insignif	insignif	insignif	insignif	insignif
127		sign_neg				
128		sign_neg				sign_neg
129	insignif	insignif	insignif	sign_neg	insignif	insignif
130	insignif	insignif	insignif	sign_neg	insignif	sign_pos
131						
132						
133						sign_neg

	dist	off	azp	azn	cap	can	flp	fln	nmp	nmn	typ	dyn	txp	txn	azsd	casd
134	18	3958	.	.	.	.	.	.	.	1	.00	2	.43	14	.
135	18	3971	.00	1	.14	7	.20	5	.00	.	.	.29	14	.	.	
136	18	4222	.00	1	.00	8	.00	4	.00	5	.	.	1.00	2	.	
137	18	4353	.00	1	.00	1	7192	-5.05	.	
138	TOTAL	.	.13	1166	.20	3961	.09	2009	.19	633	.09	.36	-8.40	.	.	

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	flsd	nmsd	nysd	txsd	p_azsd	p_casd	p_flsd	p_nmsd	p_nysd	p_txsd
134
135
136
137
138	-4.35	-9.96	-2.84	20.32	.0000004	.0000000	.0000139	.0000000	.0044530	.0000000

	s_azsd	s_casd	s_flsd	s_nmsd	s_nysd	s_txsd
134						
135						
136						
137						
138	sign_neg	sign_neg	sign_neg	sign_neg	sign_neg	sign_pos