

Appendix A

- **GES Selected Variables**
- **SAS Extraction Programs**
- **GES Standard Errors**
- **GES Weighted Statistics**

Appendix A

GES Database Variables

Table A-1 Accident File Variables

<i>Variable Name</i>	<i>Values & Definition</i>
A2 HOUR_I	The imputed hour in which the crash occurred
	0= 0:01am - 0:59 am
	1= 1:00 am – 1:59 am
	2= 2:00 am – 2:59 am
	3= 3:00 am – 3:59 am
	4= 4:00 am – 4:59 am
	5= 5:00 am – 5:59 am
	6= 6:00 am – 6:59 am
	7= 7:00 am – 7:59 am
	8= 8:00 am – 8:59 am
	9= 9:00 am – 9:59 am
	10= 10:00 am - 10:59 am
	11= 11:00 am - 11:59 am
	12= 12:00 p.m. - 12:59 p.m.
	13= 1:00 p.m. - 1:59 p.m.
	14= 2:00 p.m. - 2:59 p.m.
	15= 3:00 p.m. - 3:59 p.m.
	16= 4:00 p.m. - 4:59 p.m.
	17= 5:00 p.m. - 5:59 p.m.
	18= 6:00 p.m. - 6:59 p.m.
	19= 7:00 p.m. - 7:59 p.m.
	20= 8:00 p.m. - 8:59 p.m.
	21= 9:00 p.m. - 9:59 p.m.
	22= 10:00 p.m. - 10:59 p.m.
	23= 11:00 p.m. - 11:59 p.m.
	24= Midnight
A7I MANCOL_I	Orientation of the vehicles in a collision
	0= Not collision with a motor vehicle in transport
	1= rear-end
	2= head-on
	3= rear-to-rear
	4= angle
	5= sideswipe, same direction
	6= sideswipe, opposite direction
	8= other

Variable Name	Values & Definition
A18H SPDLIM_H	Actual imputed posted speed limit in miles per hour
	0= No statutory speed limit (parking lot, alley, etc.)
	05-75= Actual speed limit (mph)
A90I MAXSEV_I	Imputed most severe injury of all persons in the crash
	0= No injury
	1= Possible injury
	2= Non-incapacitating
	3= Incapacitating
	4= Fatal
	5= Unknown injury severity
	6= Died prior
	8= No person coded in crash

Table A-2 Vehicle File Variables

Variable Name	Values & Definition
V18 VEH_SEV	Reports the severity of the vehicle damage
	0= None
	1= Minor
	2= Functional (Moderate)
	3= Disabling (Severe)
	9= Unknown
V23 ACC_TYPE*	Categorizes the pre-crash situation
	<i>Category: Single Driver</i>
	Configuration A. Right Roadside Departure
	Configuration B. Left Roadside Departure
	Configuration C. Forward Impact
	<i>Category II. Same Trafficway, Same Direction</i>
	Configuration D. Rear-End
	Configuration E. Forward Impact
	Configuration F. Sideswipe/Angle
	<i>Category III. Same Trafficway, Opposite Direction</i>
	Configuration G. Head-On
	Configuration H. Forward Impact
	Configuration I. Sideswipe/Angle
	<i>Category IV. Changing Trafficway, Vehicle Turning</i>
	Configuration J. Turn Across Path
	Configuration K. Turn Into path
	<i>Category V. Intersecting paths (Vehicle Damage)</i>
	Configuration L. Straight Paths
	<i>Category VI. Miscellaneous</i>
	Configuration M. Backing, Etc.

* For a more detailed description of all the accident types, refer to Appendix B

SAS programs for the extraction of data from the GES Database (1996 File)

The following SAS file (main1.sas) was used to extract the variables of interest from the GES 1996 file and then merge the data from each file.

```
-----  
/* SAS Extraction Procedure for the GES Database */  
/* GES 1996 file */  
/* By Alex Avgoustis , January - 1999 */  
/* Define Path where the GES Database files are stored */  
libname accident 'C:\GES Database';  
/* Assign library to store the data */  
libname events 'H:';  
/* GES Command/ password to start the extraction process */  
options nofmterr;  
/* Create a working data set */  
data events.incident;  
/* Choose variables from the Accident file */  
set accident.acc96 (keep=CASENUM PSU WEIGHT WEEKDAY HOUR_I MAN_COL  
SPDLIM_H WEATHR_I MAXSEV_I);  
/* Sort data for merging */  
proc sort data = events.incident out= incitest;  
/* By statement for Case Number and Primary Sampling Unit to merge data */  
by psu casenum;  
run;  
data events.cars;  
/* Choose variables from the Vehicle file */  
set accident.veh96 (keep = CASENUM PSU WEIGHT SPEED VEH_SEV ACC_TYPE );  
/* Sort data in Vehicle file */  
proc sort data = events.cars out= vehtest;  
by psu casenum;  
run;  
data events.people;  
/* Choose variables from the Person file */  
set accident.per96 (keep = CASENUM PSU WEIGHT INJSEV_H AGE INJ_SEV);  
proc sort data = events.people out= pertest;  
by psu casenum;  
run;  
/* New Data Step to merge the data of the previous files */  
data alexis;  
merge incitest (in=testa) vehtest(in=testb);  
by psu casenum;  
if testa and testb;  
run;
```

The following SAS file (spd.sas) was created in order to produce a table illustrating two variables: Time of Day and Imputed Speed Limit.

```
/* SAS Extraction Procedure - Sample Program*/
/* GES 1996 file*/
/* By Alex Avgoustis, December 1998*/
/* Define the path where the GES files are stored*/
libname accident 'C:/GES Database';
/* Assign library where the data will be stored*/
libname events 'H:.';
/* Create the Data Step */
data hrspd;
  set accident.acc96;
/* Process the frequencies*/
proc freq;
/* Produce the table of HOUR Vs SPDLIM_H */
table hour*spdlim_h;
title 'Time of Day Vs Imputed Speed Limit for the GES96 file';
/* Extract National Data for 1996 */
weight weight;
run;
```

Table A-3 GES Database estimates and standard errors (1996 file)

Crash Estimate (X)	Crash Standard Error (SE)*	Vehicle Estimate (X)	Vehicle Standard Error (SE)**
1,000	500	1,000	400
5,000	1,100	5,000	1,000
6,000	1,200	10,000	1,600
7,000	1,300	20,000	2,500
8,000	1,500	30,000	3,300
9,000	1,600	40,000	4,100
10,000	1,700	50,000	4,900
20,000	2,600	60,000	5,600
30,000	3,500	70,000	6,300
40,000	4,300	80,000	7,000
50,000	5,000	90,000	7,700
60,000	5,800	100,000	8,400
70,000	6,500	200,000	14,900
80,000	7,200	300,000	21,300
90,000	7,900	400,000	27,500
100,000	8,500	500,000	33,800
200,000	15,000	600,000	40,000
300,000	21,100	700,000	46,200
400,000	27,100	800,000	52,500
500,000	33,100	900,000	58,800
600,000	39,000	1,000,000	65,100
700,000	44,900	2,000,000	129,800
800,000	50,800	3,000,000	197,400
900,000	56,700	4,000,000	267,600
1,000,000	62,700	5,000,000	340,300
2,000,000	122,600	6,000,000	415,200
3,000,000	184,300	7,000,000	492,100
4,000,000	247,800	8,000,000	570,900
5,000,000	313,000	9,000,000	651,500
6,000,000	379,800	10,000,000	733,900
6,500,000	413,700	11,000,000	817,800
7,000,000	448,000	12,000,000	903,300
<p>* $SE = e^{a+b(\ln X)^2}$ where</p> <p>a = 4.521508 b = 0.034180</p>		<p>** $SE = e^{a+b(\ln X)^2}$ where</p> <p>a = 4.374631 b = 0.035149</p>	

Table A-4 GES Summary Statistics, 1988-1997 (Unweighted Sample)

Year	Crashes	Vehicles	People	Drivers	Occupants	Pedestrians	Pedal-cyclists
1988	48,831	83,633	122,738	82,708	119,914	1,554	1,021
1989	44,105	74,778	110,896	74,354	107,447	1,880	1,315
1990	46,290	80,154	117,141	79,716	113,493	1,995	1,468
1991	42,600	73,833	108,955	73,481	105,580	1,723	1,348
1992	46,197	80,566	118,933	80,152	115,346	1,891	1,415
1993	55,644	96,544	143,525	96,209	138,759	2,589	1,845
1994	55,759	97,441	143,743	97,109	139,221	2,442	1,715
1995	53,749	95,803	140,512	95,477	136,890	1,909	1,336
1996	56,030	100,861	147,903	100,500	144,332	1,820	1,305
1997	55,262	100,032	145,890	99,688	142,366	1,838	1,266

Table A-5 GES Summary Statistics, 1988-1997 (Weighted Sample)

Year	Crashes	Vehicles	People
1988	6,876,780	12,007,970	17,247,886
1989	6,644,549	11,556,267	16,612,033
1990	6,462,126	11,315,087	16,298,795
1991	6,109,931	10,711,298	15,593,416
1992	5,992,938	10,535,596	15,339,372
1993	6,094,772	10,725,032	15,767,005
1994	6,489,122	11,487,378	16,836,682
1995	6,690,061	11,979,882	17,517,709
1996	6,833,669	12,212,464	17,901,696
1997	6,752,136	12,085,226	17,651,831