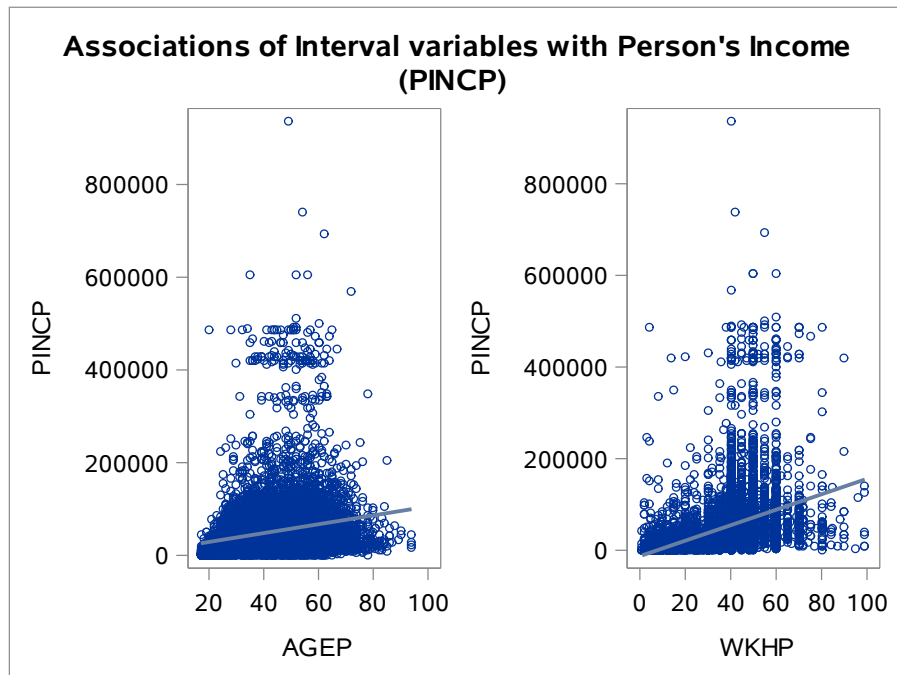# Correlations with Total Person's Income

The CORR Procedure

2 Variables:	AGEP WKHP

Pearson Correlation Coefficients, N = 10000 Prob > |r| under H0: Rho=0		
	AGEP	WKHP
AGEP	1.00000	0.10528 <.0001
WKHP	0.10528 <.0001	1.00000

Associations of Interval variables with Person's Income (PINCP)

Selected Descriptive Statistics for Persons Income

The MEANS Procedure

Analysis Variable : PINCP					
N Obs	N	Mean	Median	Std Dev	Variance
130115	130115	50600.26	36014.53	61191.09	3744349437

Analysis Variable : PINCP						
Occupation	N Obs	N	Mean	Median	Std Dev	Variance
Manager	12167	12167	97343.49	71118.84	96780.64	9366493205
Military	191	191	35606.35	22616.27	35193.06	1238551540
Office	18834	18834	34936.63	30635.81	31201.78	973551054
Sales	13903	13903	50231.94	28940.25	71362.66	5092629515
Service	16373	16373	19722.10	15006.05	21298.51	453626408
Specialist	39945	39945	64292.61	49519.98	68939.53	4752658917
Technican	28702	28702	39900.48	34299.55	31770.05	1009336069

Analysis Variable : PINCP						
Education	N Obs	N	Mean	Median	Std Dev	Variance
Associate Degree	11231	11231	44075.03	37515.13	38180.95	1457784597
Bachelor Degree	27407	27407	66693.62	51449.33	68074.82	4634181167
Doctorate Degree	1593	1593	116981.94	91112.47	99738.71	9947809282
HS-Grad	32355	32355	34570.41	27868.39	33374.41	1113851528
HS-Not Grad	10688	10688	23815.28	18275.23	28774.39	827965540
Master Degree	11542	11542	88561.44	67945.85	84942.07	7215155878
Professional Degree	3120	3120	156044.58	107186.10	141204.80	1.99388E10
Some College	32179	32179	37059.04	29476.18	39353.55	1548702031

Analysis Variable : PINCP							
Education	Occupation	N Obs	N	Mean	Median	Std Dev	Variance
Associate Degree	Manager	946	946	71752.19	53902.63	68008.87	4625205837
	Military	11	11	45099.24	49305.61	25030.38	626519938
	Office	1873	1873	34382.61	31083.97	23155.40	536172352
	Sales	1080	1080	38714.16	27128.56	43352.42	1879432210
	Service	1125	1125	24676.48	18221.64	25591.94	654947631
	Specialist	4110	4110	47304.63	43273.08	34260.89	1173808794
	Technican	2086	2086	47094.91	43765.44	30862.69	952505403
Bachelor Degree	Manager	4194	4194	106173.39	82060.20	95167.46	9056844775
	Military	28	28	53078.96	50109.50	32672.75	1067508487
	Office	3229	3229	41915.05	35012.35	38579.03	1488341302

# Selected Descriptive Statistics for Persons Income

The MEANS Procedure

Analysis Variable : PINCP							
Education	**Occupation**	**N Obs**	**N**	**Mean**	**Median**	**Std Dev**	**Variance**
Bachelor Degree	Sales	3558	3558	81203.28	54706.80	89516.36	8013177914
	Service	1264	1264	26250.79	18897.77	29482.18	869199159
	Specialist	13412	13412	62343.02	52842.75	54433.81	2963039275
	Technican	1722	1722	50815.37	42874.44	40541.28	1643595621
Doctorate Degree	Manager	222	222	159868.00	128623.32	109500.66	1.19904E10
	Office	24	24	52953.32	38806.99	57544.85	3311410116
	Sales	27	27	111811.64	80966.06	113908.76	1.29752E10
	Service	14	14	44028.89	27610.89	51452.80	2647390263
	Specialist	1290	1290	112125.64	86436.74	96771.08	9364641902
	Technican	16	16	82078.38	82977.47	49148.45	2415570139
HS-Grad	Manager	1772	1772	61177.67	45953.71	67679.53	4580518218
	Military	51	51	14446.06	13895.53	10706.40	114627007
	Office	5476	5476	32703.66	29476.18	25063.69	628188341
	Sales	3436	3436	30816.81	21882.72	38110.29	1452393843
	Service	5754	5754	20011.22	16412.04	18953.24	359225261
	Specialist	3427	3427	36158.50	27900.47	33613.39	1129859901
	Technican	12439	12439	39018.45	33977.99	29380.76	863228981
HS-Not Grad	Manager	298	298	57223.60	37248.47	67003.40	4489455001
	Military	2	2	14470.12	14470.12	17432.16	303880348
	Office	802	802	21792.73	17650.65	24696.60	609921907
	Sales	1025	1025	20838.84	10289.87	42328.92	1791737810
	Service	3254	3254	15902.08	13103.17	16715.63	279412251
	Specialist	729	729	20880.41	12862.33	26864.48	721700048
	Technican	4578	4578	28757.39	24581.84	25983.76	675155896
Master Degree	Manager	2266	2266	136040.44	104052.33	114482.49	1.31062E10
	Military	10	10	118301.06	134302.95	50930.28	2593893087
	Office	495	495	60951.78	43765.44	66895.79	4475046515
	Sales	679	679	124003.05	85748.88	129787.31	1.68447E10
	Service	207	207	32479.34	22976.86	33025.57	1090688106
	Specialist	7607	7607	75327.01	64311.66	62907.58	3957364014
	Technican	278	278	66980.22	52519.86	64298.78	4134333168
Professional Degree	Manager	254	254	180411.65	125825.64	159022.41	2.52881E10
	Office	63	63	54942.51	37515.13	62418.02	3896009743
	Sales	70	70	125017.71	96467.49	109073.03	1.18969E10
	Service	41	41	46359.11	27353.40	54878.21	3011617712

Selected Descriptive Statistics for Persons Income

The MEANS Procedure

| Analysis Variable : PINCP							
Education	Occupation	N Obs	N	Mean	Median	Std Dev	Variance
Professional Degree	Specialist	2655	2655	160004.86	107186.10	141001.07	1.98813E10
	Technican	37	37	56980.60	42338.51	48059.51	2309716072
Some College	Manager	2215	2215	70504.34	53593.05	73849.07	5453684697
	Military	89	89	32245.05	23580.94	27838.48	774980973
	Office	6872	6872	33001.72	30012.11	27912.15	779088234
	Sales	4028	4028	35855.87	21882.72	50094.83	2509492445
	Service	4714	4714	18209.10	12862.33	20735.47	429959795
	Specialist	6715	6715	38123.19	30854.64	34140.63	1165582501
	Technican	7546	7546	42464.32	38294.76	32314.65	1044236815
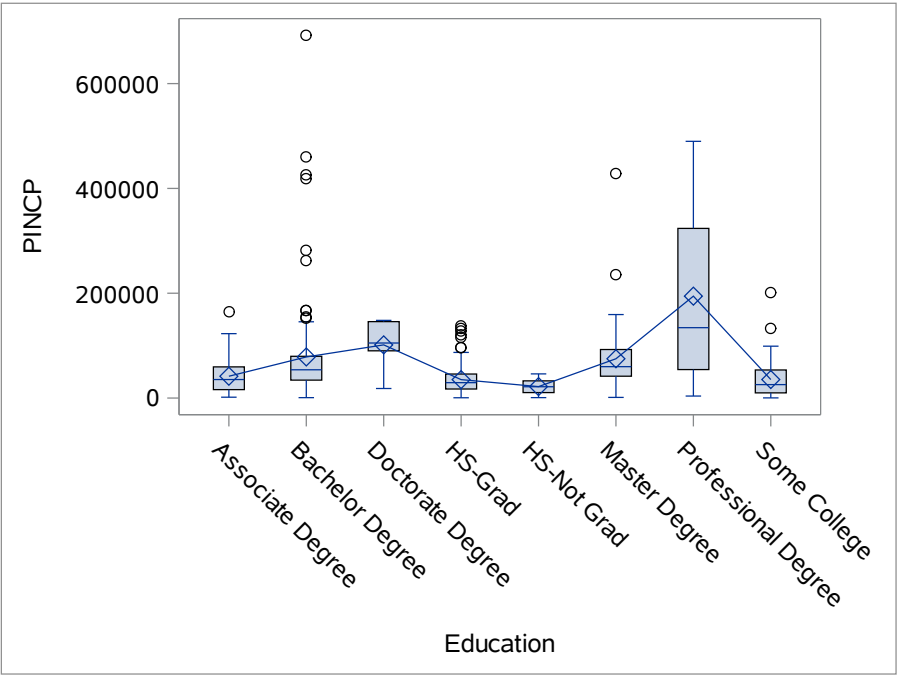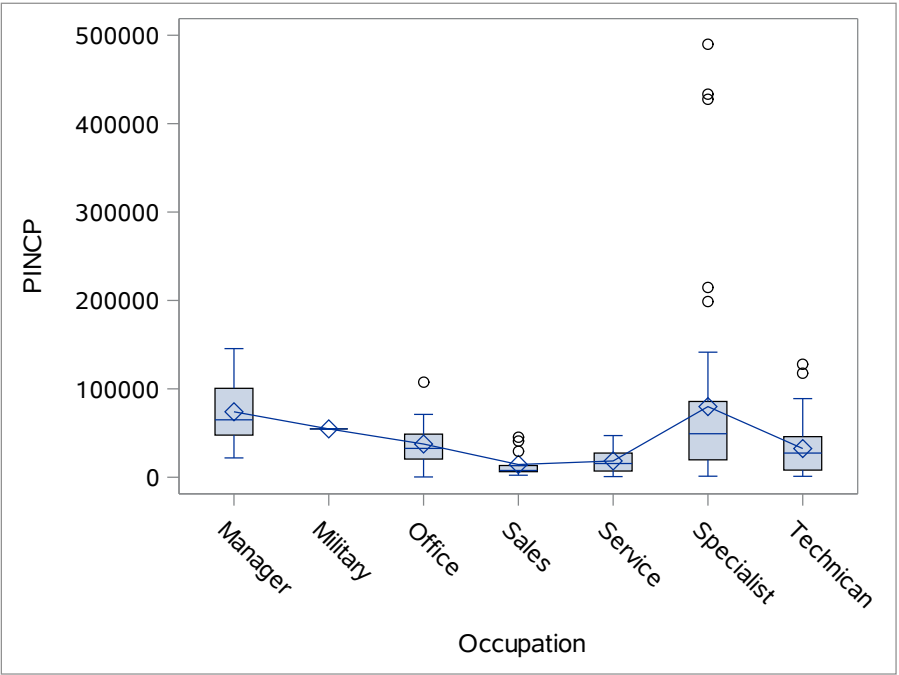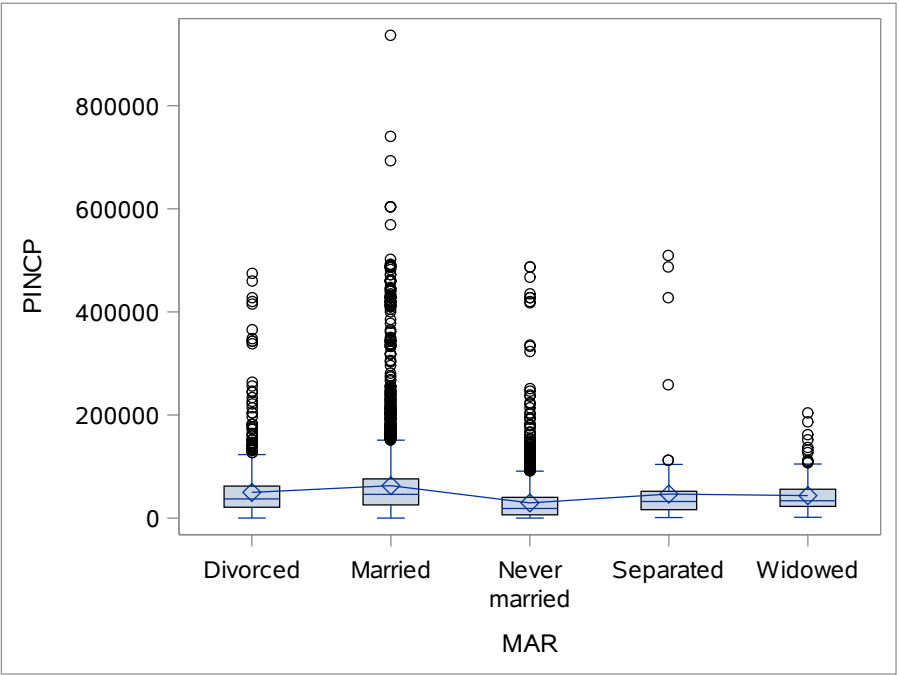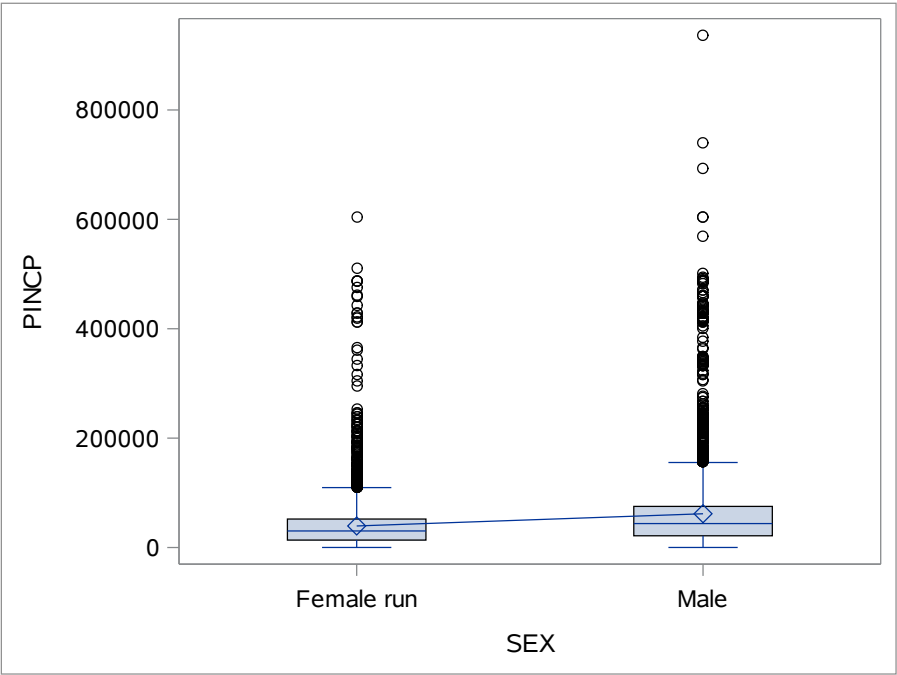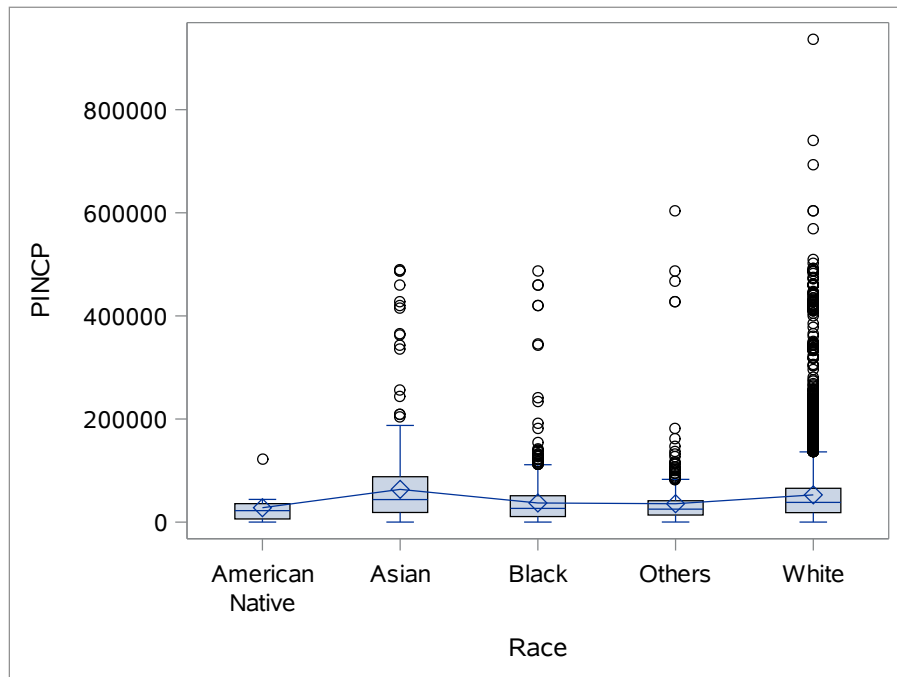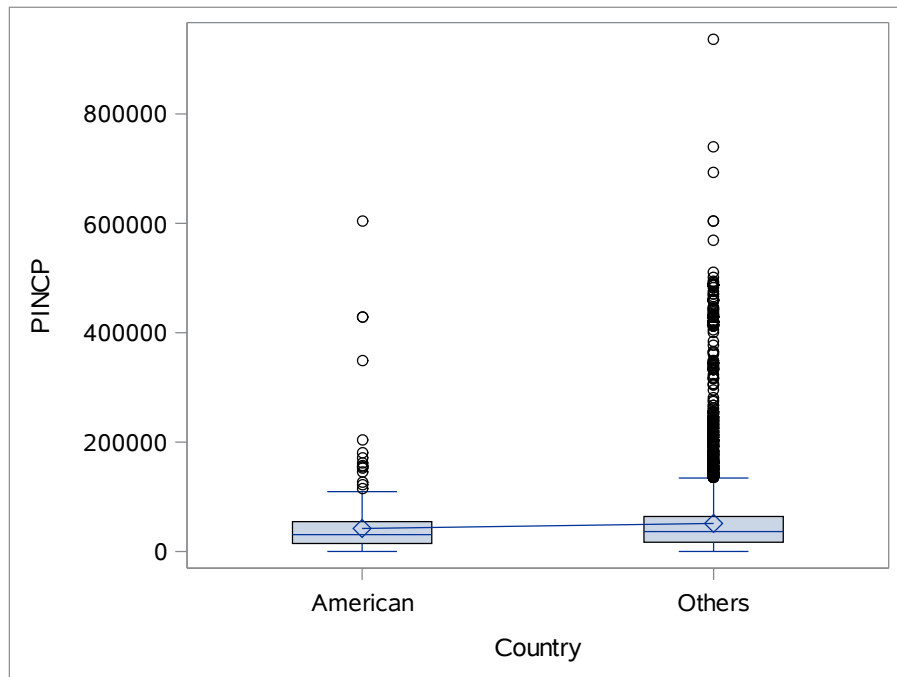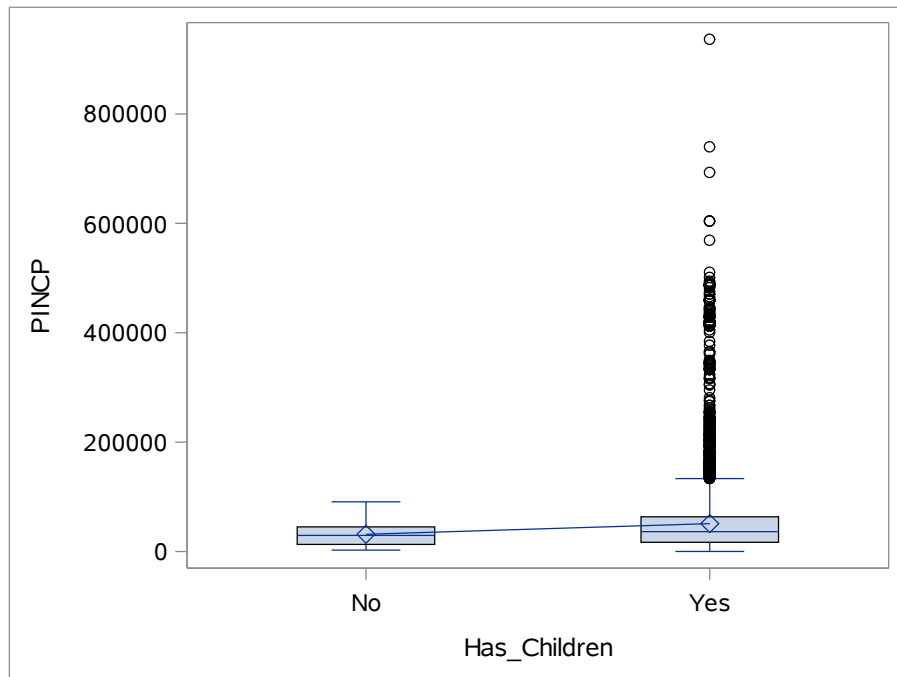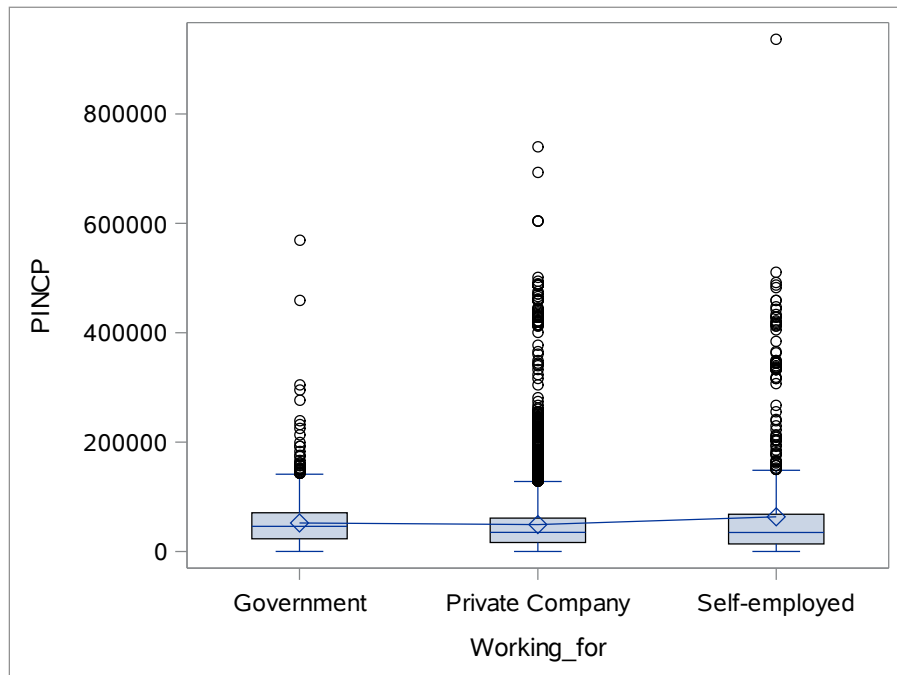
Categorical Variable Frequency Analysis

The FREQ Procedure

Education	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Associate Degree	28935	8.83	28935	8.83
Bachelor Degree	70046	21.39	98981	30.22
Doctorate Degree	4204	1.28	103185	31.50
HS-Grad	79644	24.32	182829	55.82
HS-Not Grad	26334	8.04	209163	63.86
Master Degree	30612	9.35	239775	73.21
Professional Degree	7672	2.34	247447	75.55
Some College	80076	24.45	327523	100.00

Distribution of Education
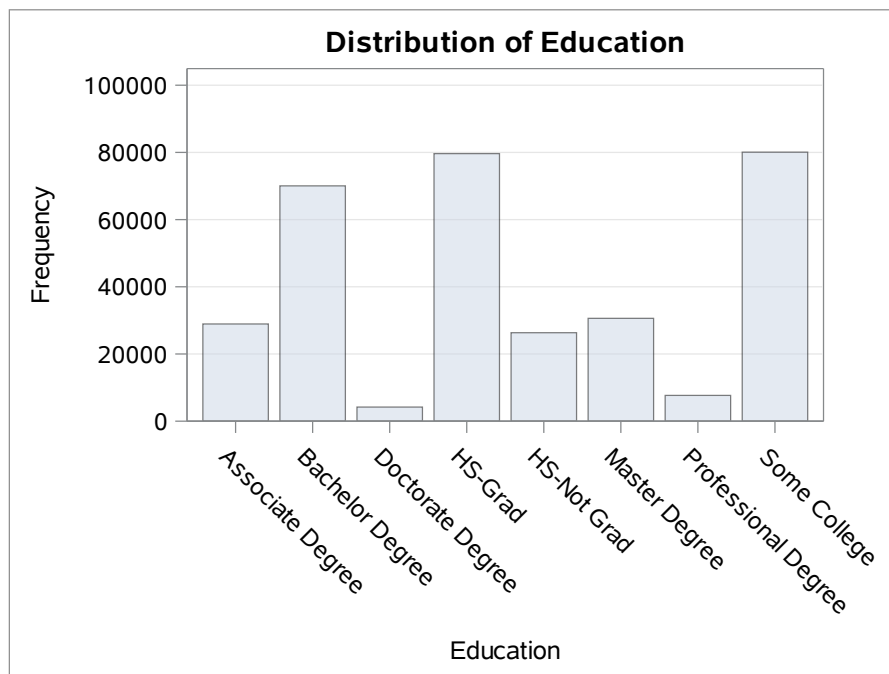
Occupation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Manager	12167	9.35	12167	9.35
Military	191	0.15	12358	9.50
Office	18834	14.47	31192	23.97
Sales	13903	10.69	45095	34.66
Service	16373	12.58	61468	47.24
Specialist	39945	30.70	101413	77.94
Technican	28702	22.06	130115	100.00
Frequency Missing = 197408				

Categorical Variable Frequency Analysis

The FREQ Procedure
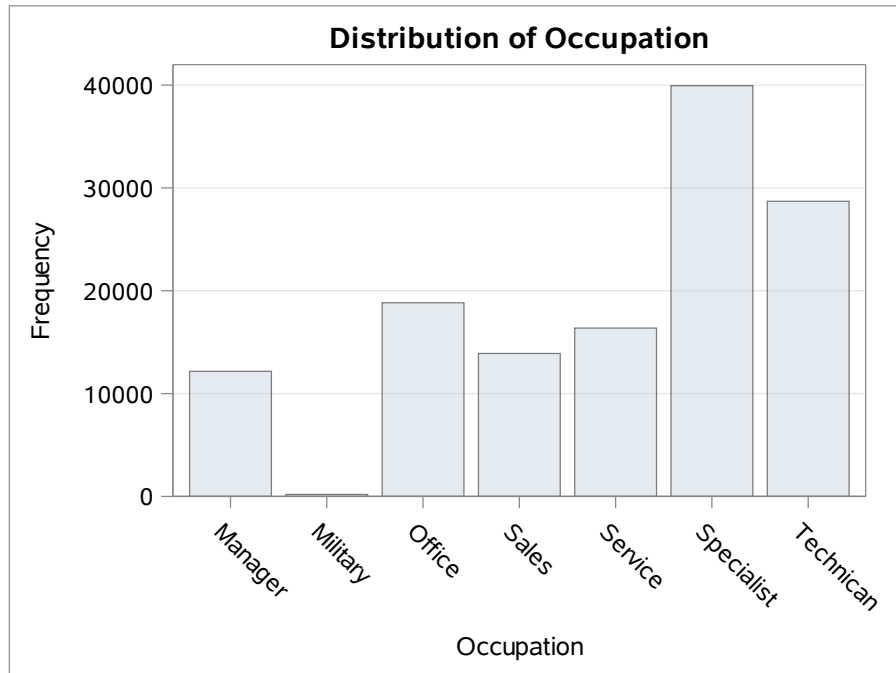
Distribution of Occupation

Simple Regression with PINCP as Regressor

The REG Procedure
Model: MODEL1
Dependent Variable: PINCP

Number of Observations Read	327523
Number of Observations Used	327523

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	7.207652E13	7.207652E13	19274.4	<.0001
Error	327521	1.224766E15	3739504329		
Corrected Total	327522	1.296843E15			

Root MSE	61151	R-Square	0.0556
Dependent Mean	50950	Adj R-Sq	0.0556
Coeff Var	120.02224		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	7652.09063	329.67036	23.21	<.0001
AGEP	1	1011.46233	7.28551	138.83	<.0001

Simple Regression with PINCP as Regressor

The REG Procedure
Model: MODEL1
Dependent Variable: PINCP

Number of Observations Read	327523
Number of Observations Used	327523

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.608072E14	1.608072E14	46361.0	<.0001
Error	327521	1.136036E15	3468588467		
Corrected Total	327522	1.296843E15			

Root MSE	58895	R-Square	0.1240
Dependent Mean	50950	Adj R-Sq	0.1240
Coeff Var	115.59288		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-13137	314.93198	-41.71	<.0001
WKHP	1	1698.41725	7.88802	215.32	<.0001

One-Way ANOVA with categorical variables as Predictor

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
Education	8	Associate Degree Bachelor Degree Doctorate Degree HS-Grad HS-Not Grad Master Degree Professional Degree Some College
Occupation	7	Manager Military Office Sales Service Specialist Technican

Number of Observations Read	327523
Number of Observations Used	130115

One-Way ANOVA with categorical variables as Predictor

The GLM Procedure

Dependent Variable: PINCP

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	13	1.1248111E14	8.6523931E12	3004.14	<.0001
Error	130101	3.7471117E14	2880155974.3		
Corrected Total	130114	4.8719228E14			

R-Square	Coeff Var	Root MSE	PINCP Mean
0.230876	106.0609	53667.08	50600.26

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Education	7	8.7800711E13	1.2542959E13	4354.96	<.0001
Occupation	6	2.4680399E13	4.1133998E12	1428.19	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Education	7	5.4845465E13	7.8350664E12	2720.36	<.0001
Occupation	6	2.4680399E13	4.1133998E12	1428.19	<.0001

One-Way ANOVA with categorical variables as Predictor

The GLM Procedure

Distribution of PINCP
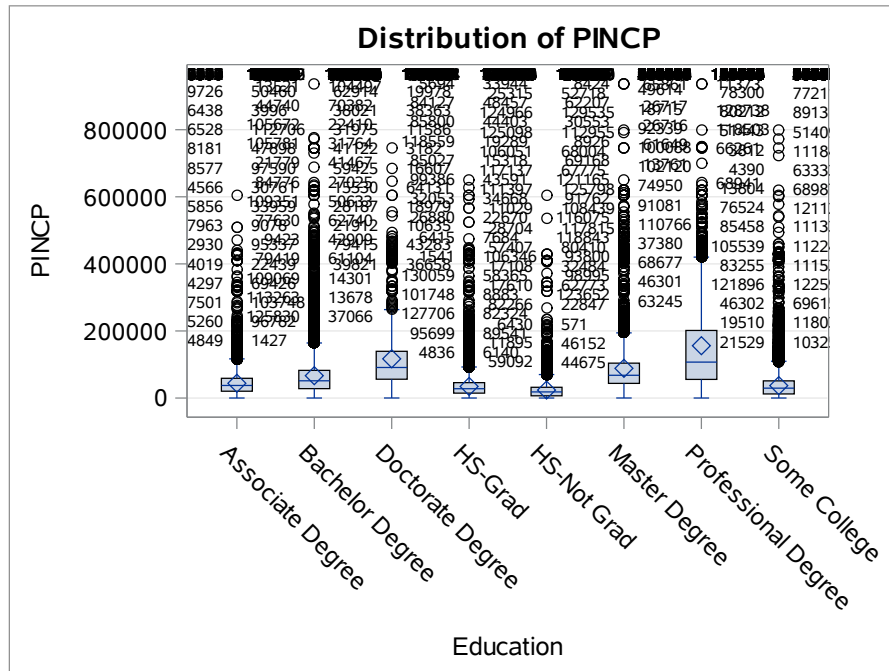
Level of Education	N	PINCP	
		Mean	Std Dev
Associate Degree	11231	44075.030	38180.945
Bachelor Degree	27407	66693.620	68074.820
Doctorate Degree	1593	116981.936	99738.705
HS-Grad	32355	34570.409	33374.414
HS-Not Grad	10688	23815.277	28774.390
Master Degree	11542	88561.443	84942.074
Professional Degree	3120	156044.580	141204.797
Some College	32179	37059.041	39353.552

One-Way ANOVA with categorical variables as Predictor

The GLM Procedure

Distribution of PINCP
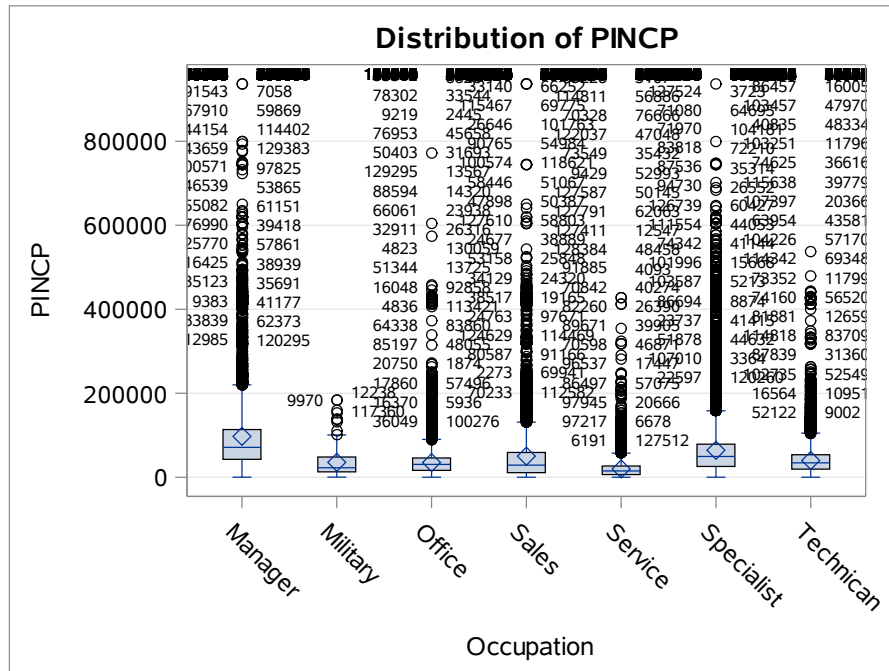
		PINCP	
Level of Occupation	**N**	**Mean**	**Std Dev**
Manager	12167	97343.4893	96780.6448
Military	191	35606.3470	35193.0610
Office	18834	34936.6347	31201.7797
Sales	13903	50231.9351	71362.6619
Service	16373	19722.1022	21298.5072
Specialist	39945	64292.6136	68939.5309
Technican	28702	39900.4838	31770.0499

Analyze the overall effect of all Variables Including Interaction

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
Education	8	Associate Degree Bachelor Degree Doctorate Degree HS-Grad HS-Not Grad Master Degree Professional Degree Some College
Occupation	7	Manager Military Office Sales Service Specialist Technican

Number of Observations Read	327523
Number of Observations Used	130115

Analyze the overall effect of all Variables Including Interaction

The GLM Procedure

Dependent Variable: PINCP

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	14	1.4296733E14	1.0211952E13	3859.61	<.0001
Error	130100	3.4422495E14	2645848947.3		
Corrected Total	130114	4.8719228E14			

R-Square	Coeff Var	Root MSE	PINCP Mean
0.293452	101.6552	51437.82	50600.26

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Education	7	8.7800711E13	1.2542959E13	4740.62	<.0001
Occupation	6	2.4680399E13	4.1133998E12	1554.66	<.0001
WKHP	1	3.0486224E13	3.0486224E13	11522.3	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Education	7	4.3260236E13	6.1800337E12	2335.75	<.0001
Occupation	6	1.4432187E13	2.4053645E12	909.11	<.0001
WKHP	1	3.0486224E13	3.0486224E13	11522.3	<.0001

Parameter	Estimate		Standard Error	t Value	Pr > |t|
Intercept	-8651.2768	B	605.313496	-14.29	<.0001
Education Associate Degree	3251.2480	B	567.477938	5.73	<.0001
Education Bachelor Degree	20113.8866	B	444.867503	45.21	<.0001
Education Doctorate Degree	65874.1051	B	1343.601598	49.03	<.0001
Education HS-Grad	-2480.4232	B	410.286861	-6.05	<.0001
Education HS-Not Grad	-6631.2031	B	588.031655	-11.28	<.0001
Education Master Degree	38707.2813	B	594.884311	65.07	<.0001
Education Professional Degree	104551.3800	B	999.141402	104.64	<.0001
Education Some College	0.0000	B	.	.	.
Occupation Manager	33951.6915	B	591.719205	57.38	<.0001
Occupation Military	-21011.5227	B	3737.638930	-5.62	<.0001
Occupation Office	-4021.0828	B	494.968645	-8.12	<.0001
Occupation Sales	7361.8075	B	544.546373	13.52	<.0001
Occupation Service	-10434.1620	B	513.645495	-20.31	<.0001
Occupation Specialist	2752.3052	B	461.062181	5.97	<.0001

Analyze the overall effect of all Variables
Including Interaction

The GLM Procedure

Dependent Variable: PINCP

Parameter	Estimate		Standard Error	t Value	Pr > |t|
Occupation Technican	0.0000	B	.	.	.
WKHP	1229.2548		11.451770	107.34	<.0001

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

The FREQ Procedure

Frequency Expected Cell Chi-Square Row Pct

Table of Education by bonus			
	bonus		
Education	**No**	**Yes**	**Total**
Associate Degree	21090 20324 28.862 72.89	7845 8610.9 68.122 27.11	28935
Bachelor Degree	38761 49201 2215.2 55.34	31285 20845 5228.4 44.66	70046
Doctorate Degree	1106 2952.9 1155.2 26.31	3098 1251.1 2726.5 73.69	4204
HS-Grad	67015 55942 2191.6 84.14	12629 23702 5172.8 15.86	79644
HS-Not Grad	24521 18497 1961.7 93.12	1813 7836.9 4630.3 6.88	26334
Master Degree	11769 21502 4405.7 38.45	18843 9110 10399 61.55	30612
Professional Degree	1906 5388.9 2251 24.84	5766 2283.1 5313 75.16	7672
Some College	63886 56246 1037.8 79.78	16190 23830 2449.5 20.22	80076
Total	230054	97469	327523

The FREQ Procedure

Statistics for Table of Education by bonus

Statistic	DF	Value	Prob
Chi-Square	7	51234.3108	<.0001
Likelihood Ratio Chi-Square	7	50964.0930	<.0001
Mantel-Haenszel Chi-Square	1	1827.7852	<.0001
Phi Coefficient		0.3955	
Contingency Coefficient		0.3678	
Cramer's V		0.3955	

Sample Size = 327523

Frequency Expected Cell Chi-Square Row Pct	Table of Occupation by bonus		
	bonus		
Occupation	**No**	**Yes**	**Total**
Manager	4706 8610.2 1770.3 38.68	7461 3556.8 4285.4 61.32	12167
Military	154 135.16 2.6248 80.63	37 55.836 6.3541 19.37	191
Office	16045 13328 553.79 85.19	2789 5505.8 1340.6 14.81	18834
Sales	10212 9838.7 14.165 73.45	3691 4064.3 34.29 26.55	13903
Service	15657 11587 1429.9 95.63	716 4786.4 3461.5 4.37	16373
Specialist	22855 28268 1036.4 57.22	17090 11677 2508.9 42.78	39945
Technican	22449 20311 224.96 78.21	6253 8390.6 544.56 21.79	28702
Total	92078	38037	130115
Frequency Missing = 197408			

The FREQ Procedure

Statistics for Table of Occupation by bonus

Statistic	DF	Value	Prob
Chi-Square	6	17213.8816	<.0001
Likelihood Ratio Chi-Square	6	18411.2875	<.0001
Mantel-Haenszel Chi-Square	1	814.9398	<.0001
Phi Coefficient		0.3637	
Contingency Coefficient		0.3418	
Cramer's V		0.3637	

Effective Sample Size = 130115
Frequency Missing = 197408

WARNING: 60% of the data are missing.

LOGISTIC MODEL: bonus = WKHP Occupation Education

The LOGISTIC Procedure

Model Information	
Data Set	CENSUS.PSAM_P17_SUBSET1
Response Variable	bonus
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	327523
Number of Observations Used	130115

Response Profile		
Ordered Value	**bonus**	**Total Frequency**
1	0	92078
2	1	38037

Probability modeled is bonus='1'.

Note: 197408 observations were deleted due to missing values for the response or explanatory variables.

Class Level Information								
Class	**Value**	**Design Variables**						
Occupation	**Manager**	0	0	0	0	0	0	
	Military	1	0	0	0	0	0	
	Office	0	1	0	0	0	0	
	Sales	0	0	1	0	0	0	
	Service	0	0	0	1	0	0	
	Specialist	0	0	0	0	1	0	
	Technican	0	0	0	0	0	1	
Education	**Associate Degree**	1	0	0	0	0	0	0
	Bachelor Degree	0	1	0	0	0	0	0
	Doctorate Degree	0	0	1	0	0	0	0
	HS-Grad	0	0	0	1	0	0	0
	HS-Not Grad	0	0	0	0	1	0	0
	Master Degree	0	0	0	0	0	0	0
	Professional Degree	0	0	0	0	0	1	0
	Some College	0	0	0	0	0	0	1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

LOGISTIC MODEL: bonus = WKHP Occupation Education

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	157240.26	119598.26
SC	157250.04	119744.90
-2 Log L	157238.26	119568.26

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	37670.0034	14	<.0001
Score	33686.2305	14	<.0001
Wald	24019.5897	14	<.0001

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
WKHP	1	7494.1922	<.0001
Occupation	6	4351.8851	<.0001
Education	7	7159.3722	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-1.2062	0.0409	869.8608	<.0001
WKHP		1	0.0592	0.000684	7494.1922	<.0001
Occupation	Military	1	-2.1667	0.2103	106.1937	<.0001
Occupation	Office	1	-1.4763	0.0301	2409.8094	<.0001
Occupation	Sales	1	-0.9289	0.0298	971.7083	<.0001
Occupation	Service	1	-2.5306	0.0454	3107.9520	<.0001
Occupation	Specialist	1	-0.6970	0.0239	847.5125	<.0001
Occupation	Technican	1	-0.9097	0.0268	1155.2251	<.0001
Education	Associate Degree	1	-1.2097	0.0314	1487.5254	<.0001
Education	Bachelor Degree	1	-0.6291	0.0249	640.0954	<.0001
Education	Doctorate Degree	1	0.5688	0.0657	75.0065	<.0001
Education	HS-Grad	1	-1.7938	0.0289	3850.3106	<.0001
Education	HS-Not Grad	1	-2.5133	0.0474	2807.5453	<.0001
Education	Professional Degree	1	0.4932	0.0491	100.9422	<.0001
Education	Some College	1	-1.4649	0.0270	2938.4552	<.0001

LOGISTIC MODEL: bonus = WKHP Occupation Education

The LOGISTIC Procedure

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	81.8	Somers' D	0.644
Percent Discordant	17.3	Gamma	0.650
Percent Tied	0.9	Tau-a	0.267
Pairs	3502370886	c	0.822

Odds Ratio Estimates and Profile-Likelihood Confidence Intervals				
Effect	Unit	Estimate	95% Confidence Limits	
WKHP	10.0000	1.807	1.783	1.832
Occupation Military vs Manager	1.0000	0.115	0.075	0.171
Occupation Office vs Manager	1.0000	0.228	0.215	0.242
Occupation Sales vs Manager	1.0000	0.395	0.373	0.419
Occupation Service vs Manager	1.0000	0.080	0.073	0.087
Occupation Specialist vs Manager	1.0000	0.498	0.475	0.522
Occupation Technican vs Manager	1.0000	0.403	0.382	0.424
Education Associate Degree vs Master Degree	1.0000	0.298	0.280	0.317
Education Bachelor Degree vs Master Degree	1.0000	0.533	0.508	0.560
Education Doctorate Degree vs Master Degree	1.0000	1.766	1.554	2.011
Education HS-Grad vs Master Degree	1.0000	0.166	0.157	0.176
Education HS-Not Grad vs Master Degree	1.0000	0.081	0.074	0.089
Education Professional Degree vs Master Degree	1.0000	1.638	1.488	1.804
Education Some College vs Master Degree	1.0000	0.231	0.219	0.244

LOGISTIC MODEL: bonus = WKHP Occupation Education

The LOGISTIC Procedure

Odds Ratios with 95% Profile-Likelihood Confidence Limits

LOGISTIC MODEL: bonus = WKHP Occupation Education

The LOGISTIC Procedure

Predicted Probabilities for bonus=1
At Education=Master Degree