```
libname j'\\Cfile.ucsc.edu\cfilehomes\jchiu\Econ 201\Project\kieadata';

data one;
      set j.kieadata06;
      run;

data two;
      set j.kieadata07;
      run;

data three;
      set j.kieadata08;
      run;

data whole;
      set one two three;
      if state = 93;
      keep age class ent015u faminc female grdatn homeown hours indmaj2
marstat month mlr msastat race region spneth state year;
      run;

data pre1;
      set whole;
      where 2006<=year<=2007;
      run;

data pre2;
      set whole;
      where year=2008 and 1<=month<=2;
      run;

data pre;
      set pre1 pre2;
      run;

data post;
      set whole;
      where year=2008 and month>=2<=6;
      run;

data econpre;
      set pre;

      if faminc >=1 <=8 then Income1 = 1;
            else Income1 = 0;
      if faminc >=9 <=12 then Income2 = 1;
            else Income2 = 0;
      if faminc >=13 <=14 then Income3 = 1;
            else Income3 = 0;
      if faminc >=15 then Income4 = 1;
            else Income4 = 0;

      if grdatn <=38 then NoDiploma = 1;
            else NoDiploma = 0;
      if grdatn = 39 then HSGrad = 1;
            else HSGrad = 0;
      if grdatn >=40 <=42 then SomeCollAA = 1;
```

```
            else SomeCollAA = 0;
        if grdatn = 43 then BA = 1;
            else BA = 0;
        if grdatn = 44 then MA = 1;
            else MA = 0;
        if grdatn >=45 <=46 then PHD = 1;
            else PHD = 0;

        if race = 1 then White = 1;
            else White = 0;
        if race = 2 then Black = 1;
            else Black = 0;
        if race = 4 then Asian = 1;
            else Asian = 0;
        if spneth >=1 <=5 then Latino = 1;
            else Latino = 0;

        if marstat >=1 <=3 then Married = 1;
            else Married = 0;
        if marstat >=4 <=7 then Single = 1;
            else Single = 0;

        if mlr >=1 <=2 then Employed = 1;
            else Employed = 0;
        if mlr >=3 <=4 then Unemployed = 1;
            else Unemployed = 0;
        if mlr >=5 <=7 then NILF = 1;
            else NILF = 0;

        if class >=1 <=3 then GovWorker = 1;
            else Govworker = 0;
        if class >=4 <=5 then Private = 1;
            else Private = 0;
        if class >=6 <=7 then SelfEmploy = 1;
            else SelfEmploy = 0;
        if class = 8 then Nopay = 1;
            else Nopay = 0;

        if ent015u = 1 then Entrepreneur = 1;
            else Entrepreneur = 0;
        if ent015u = 0 then NotEntrepreneur = 1;
            else NotEntrepreneur = 0;

        run;

data econpost;
        set post;

        if faminc >=1 <=8 then Income1 = 1;
            else Income1 = 0;
        if faminc >=9 <=12 then Income2 = 1;
            else Income2 = 0;
        if faminc >=13 <=14 then Income3 = 1;
            else Income3 = 0;
        if faminc >=15 then Income4 = 1;
            else Income4 = 0;
```

```
      if grdatn <=38 then NoDiploma = 1;
            else NoDiploma = 0;
      if grdatn = 39 then HSGrad = 1;
            else HSGrad = 0;
      if grdatn >=40 <=42 then SomeCollAA = 1;
            else SomeCollAA = 0;
      if grdatn = 43 then BA = 1;
            else BA = 0;
      if grdatn = 44 then MA = 1;
            else MA = 0;
      if grdatn >=45 <=46 then PHD = 1;
            else PHD = 0;

      if race = 1 then White = 1;
            else White = 0;
      if race = 2 then Black = 1;
            else Black = 0;
      if race = 4 then Asian = 1;
            else Asian = 0;
      if spneth >=1 <=5 then Latino = 1;
            else Latino = 0;

      if marstat >=1 <=3 then Married = 1;
            else Married = 0;
      if marstat >=4 <=7 then Single = 1;
            else Single = 0;

      if mlr >=1 <=2 then Employed = 1;
            else Employed = 0;
      if mlr >=3 <=4 then Unemployed = 1;
            else Unemployed = 0;
      if mlr >=5 <=7 then NILF = 1;
            else NILF = 0;

      if class >=1 <=3 then GovWorker = 1;
            else Govworker = 0;
      if class >=4 <=5 then Private = 1;
            else Private = 0;
      if class >=6 <=7 then SelfEmploy = 1;
            else SelfEmploy = 0;
      if class = 8 then Nopay = 1;
            else Nopay = 0;

      if ent015u = 1 then Entrepreneur = 1;
            else Entrepreneur = 0;
      if ent015u = 0 then NotEntrepreneur = 1;
            else NotEntrepreneur = 0;

      run;

title 'premeans';
proc means data = econpre;
      run;

title 'postmeans';
proc means data = econpost;
      run;
```

```
title 'regressionpre';
proc logistic data=econpre descending;
model homeown = Black Asian Latino Age female Hours Income2 Income3 Income4
HSGrad SomeCollAA BA MA PHD Single Private SelfEmploy Entrepreneur Unemployed
NILF;
run;

title 'regressionpost';
proc logistic data=econpost descending;
model homeown = Black Asian Latino Age female Hours Income2 Income3 Income4
HSGrad SomeCollAA BA MA PHD Single Private SelfEmploy Entrepreneur Unemployed
NILF;
run;
```


The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
month	120886	6.1239598	3.5876967	1.0000000	12.0000000
grdatn	120886	40.0227404	3.1479208	31.0000000	46.0000000
marstat	120886	3.2580365	2.6888683	1.0000000	7.0000000
age	120886	40.9647436	12.1601057	20.0000000	64.0000000
class	120886	3.0175372	2.4257392	-1.0000000	8.0000000
region	120886	4.0000000	0	4.0000000	4.0000000
state	120886	93.0000000	0	93.0000000	93.0000000
hours	120886	27.8530516	21.2119352	-1.0000000	160.0000000
mlr	120886	2.3644343	2.3111768	1.0000000	7.0000000
faminc	120886	8.8601079	6.0272885	-3.0000000	14.0000000
spneth	120886	-0.1589183	1.3520974	-1.0000000	5.0000000
race	120886	1.6055292	1.4358525	1.0000000	21.0000000
year	120886	2006.62	0.6271734	2006.00	2008.00
female	120886	0.5170739	0.4997105	0	1.0000000
homeown	106894	0.6129062	0.4870877	0	1.0000000
ent015u	108580	0.0053417	0.0728917	0	1.0000000
indmaj2	93353	7.6458925	3.1089207	1.0000000	14.0000000
msastat	65286	1.7269552	0.8634122	1.0000000	4.0000000
Income1	120886	0.8368132	0.3695375	0	1.0000000
Income2	120886	0.6509935	0.4766580	0	1.0000000
Income3	120886	0.4229439	0.4940287	0	1.0000000
Income4	120886	0	0	0	0
NoDiploma	120886	0.1717734	0.3771849	0	1.0000000
HSGrad	120886	0.2285873	0.4199245	0	1.0000000
SomeCollAA	120886	0.5996393	0.4899735	0	1.0000000
BA	120886	0.2044240	0.4032818	0	1.0000000
MA	120886	0.0667323	0.2495588	0	1.0000000
PHD	120886	0.0283821	0.1660626	0	1.0000000
White	120886	0.7863690	0.4098710	0	1.0000000
Black	120886	0.0552835	0.2285337	0	1.0000000
Asian	120886	0.1231325	0.3285906	0	1.0000000
Latino	120886	0.3372351	0.4727678	0	1.0000000
Married	120886	1.0000000	0	1.0000000	1.0000000
Single	120886	0.4148123	0.4926917	0	1.0000000
Employed	120886	1.0000000	0	1.0000000	1.0000000
Unemployed	120886	0.2613619	0.4393785	0	1.0000000
NILF	120886	0.2261552	0.4183425	0	1.0000000
GovWorker	120886	0.7722400	0.4193887	0	1.0000000
Private	120886	0.6629717	0.4726966	0	1.0000000

SelfEmploy	120886	0.1049170	0.3064477	0	1.0000000
Nopay	120886	0.000752775	0.0274265	0	1.0000000
Entrepreneur	120886	0.0047979	0.0691009	0	1.0000000
NotEntrepreneur	120886	0.8934037	0.3086006	0	1.0000000

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The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
month	51660	6.9948897	3.1674908	2.0000000	12.0000000
grdatn	51660	40.1270616	3.1396698	31.0000000	46.0000000
marstat	51660	3.2535424	2.6976007	1.0000000	7.0000000
age	51660	41.3051491	12.4461990	20.0000000	64.0000000
class	51660	3.0021680	2.3942257	-1.0000000	8.0000000
region	51660	4.0000000	0	4.0000000	4.0000000
state	51660	93.0000000	0	93.0000000	93.0000000
hours	51660	27.0987611	21.1783993	-1.0000000	160.0000000
mlr	51660	2.3861401	2.2999965	1.0000000	7.0000000
faminc	51660	8.9884630	6.0043976	-3.0000000	14.0000000
spneth	51660	-0.1348432	1.3688826	-1.0000000	5.0000000
race	51660	1.5865079	1.3687392	1.0000000	20.0000000
year	51660	2008.00	0	2008.00	2008.00
female	51660	0.5146729	0.4997895	0	1.0000000
homeown	23568	0.5994569	0.4900189	0	1.0000000
ent015u	46968	0.0057060	0.0753231	0	1.0000000
indmaj2	40028	7.6486459	3.1061474	1.0000000	14.0000000
msastat	51660	1.7383856	0.8727833	1.0000000	4.0000000
Income1	51660	0.8386179	0.3678866	0	1.0000000
Income2	51660	0.6658343	0.4717025	0	1.0000000
Income3	51660	0.4359079	0.4958800	0	1.0000000
Income4	51660	0	0	0	0
NoDiploma	51660	0.1628339	0.3692176	0	1.0000000
HSGrad	51660	0.2277584	0.4193899	0	1.0000000
SomeCollAA	51660	0.6094077	0.4878879	0	1.0000000
BA	51660	0.2143438	0.4103703	0	1.0000000
MA	51660	0.0730159	0.2601651	0	1.0000000
PHD	51660	0.0279133	0.1647260	0	1.0000000
White	51660	0.7866434	0.4096813	0	1.0000000
Black	51660	0.0578397	0.2334424	0	1.0000000
Asian	51660	0.1226094	0.3279915	0	1.0000000
Latino	51660	0.3462640	0.4757832	0	1.0000000
Married	51660	1.0000000	0	1.0000000	1.0000000
Single	51660	0.4124468	0.4922795	0	1.0000000
Employed	51660	1.0000000	0	1.0000000	1.0000000
Unemployed	51660	0.2725513	0.4452762	0	1.0000000
NILF	51660	0.2230352	0.4162858	0	1.0000000
GovWorker	51660	0.7748355	0.4176947	0	1.0000000
Private	51660	0.6639566	0.4723585	0	1.0000000
SelfEmploy	51660	0.0943864	0.2923683	0	1.0000000
Nopay	51660	0.0010259	0.0320142	0	1.0000000
Entrepreneur	51660	0.0051878	0.0718398	0	1.0000000
NotEntrepreneur	51660	0.9039876	0.2946111	0	1.0000000

The LOGISTIC Procedure

Model Information

Data Set	WORK.ECONPRE
Response Variable	homeown
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	120886
Number of Observations Used	106894

Response Profile

Ordered Value	homeown	Total Frequency
1	1	65516
2	0	41378

Probability modeled is homeown=1.

NOTE: 13992 observations were deleted due to missing values for the response or explanatory variables.

Model Convergence Status

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

Model Fit Statistics

Criterion	Intercept Only	Intercept and Covariates
AIC	142690.59	118972.88
SC	142700.17	119164.47
-2 Log L	142688.59	118932.88

Testing Global Null Hypothesis: BETA=0

Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	23755.7108	19	<.0001
Score	21800.9641	19	<.0001
Wald	18224.5421	19	<.0001

The LOGISTIC Procedure

NOTE: The following parameters have been set to 0, since the variables are a linear combination of other variables as shown.

Income4 = 0

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.5427	0.0508	921.5911	<.0001
Black	1	-0.4733	0.0309	235.2322	<.0001
Asian	1	0.1311	0.0230	32.3820	<.0001
Latino	1	-0.0138	0.0180	0.5865	0.4438
age	1	0.0383	0.000628	3720.7841	<.0001
female	1	0.0341	0.0147	5.3467	0.0208
hours	1	-0.00208	0.000595	12.2290	0.0005
Income2	1	0.3699	0.0177	436.3161	<.0001
Income3	1	1.1146	0.0192	3382.6048	<.0001
Income4	0	0	.	.	
HSGrad	1	0.5013	0.0226	491.2395	<.0001
SomeCollAA	1	0.7191	0.0232	959.4483	<.0001
BA	1	-0.1806	0.0213	71.8121	<.0001
MA	1	-0.2138	0.0330	41.9825	<.0001
PHD	1	-0.2309	0.0488	22.3883	<.0001
Single	1	-0.6350	0.0148	1843.8471	<.0001
Private	1	-0.4323	0.0255	287.0728	<.0001
SelfEmploy	1	0.4046	0.0256	249.4761	<.0001
Entrepreneur	1	-0.00512	0.0988	0.0027	0.9587
Unemployed	1	-0.0718	0.0436	2.7083	0.0998
NILF	1	-0.2464	0.0450	29.9741	<.0001

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
Black	0.623	0.586	0.662
Asian	1.140	1.090	1.193
Latino	0.986	0.952	1.022
age	1.039	1.038	1.040
female	1.035	1.005	1.065
hours	0.998	0.997	0.999
Income2	1.448	1.398	1.499
Income3	3.048	2.936	3.165
HSGrad	1.651	1.579	1.726
SomeCollAA	2.053	1.961	2.148
BA	0.835	0.801	0.870
MA	0.808	0.757	0.861

The LOGISTIC Procedure

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
PHD	0.794	0.721	0.873
Single	0.530	0.515	0.546
Private	0.649	0.617	0.682
SelfEmploy	1.499	1.425	1.576
Entrepreneur	0.995	0.820	1.208
Unemployed	0.931	0.854	1.014
NILF	0.782	0.716	0.854

Association of Predicted Probabilities and Observed Responses

Percent Concordant	76.8	Somers' D	0.538
Percent Discordant	23.0	Gamma	0.539
Percent Tied	0.2	Tau-a	0.255
Pairs	2710921048	c	0.769

The LOGISTIC Procedure

Model Information

Data Set	WORK.ECONPOST
Response Variable	homeown
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	51660
Number of Observations Used	23568

Response Profile

Ordered Value	homeown	Total Frequency
1	1	14128
2	0	9440

Probability modeled is homeown=1.

NOTE: 28092 observations were deleted due to missing values for the response or explanatory variables.

Model Convergence Status

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

Model Fit Statistics

Criterion	Intercept Only	Intercept and Covariates
AIC	31735.429	26212.123
SC	31743.497	26373.476
-2 Log L	31733.429	26172.123

Testing Global Null Hypothesis: BETA=0

Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	5561.3058	19	<.0001
Score	5083.5844	19	<.0001
Wald	4210.3333	19	<.0001

The LOGISTIC Procedure

NOTE: The following parameters have been set to 0, since the variables are a linear combination of other variables as shown.

Income4 = 0

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.5476	0.1097	199.0544	<.0001
Black	1	-0.7672	0.0625	150.7298	<.0001
Asian	1	-0.2018	0.0489	17.0241	<.0001
Latino	1	-0.1105	0.0382	8.3732	0.0038
age	1	0.0417	0.00132	993.9738	<.0001
female	1	0.00689	0.0314	0.0483	0.8261
hours	1	-0.00217	0.00129	2.8557	0.0911
Income2	1	0.2888	0.0385	56.3526	<.0001
Income3	1	1.1864	0.0399	884.8987	<.0001
Income4	0	0	.	.	
HSGrad	1	0.4703	0.0490	92.1224	<.0001
SomeCollAA	1	0.6741	0.0503	179.4516	<.0001
BA	1	-0.2112	0.0450	22.0639	<.0001
MA	1	-0.3214	0.0669	23.1076	<.0001
PHD	1	-0.3217	0.1037	9.6166	0.0019
Single	1	-0.5842	0.0318	338.5298	<.0001
Private	1	-0.5235	0.0546	91.9070	<.0001
SelfEmploy	1	0.3223	0.0554	33.8966	<.0001
Entrepreneur	1	-0.3366	0.2196	2.3495	0.1253
Unemployed	1	-0.0901	0.0869	1.0735	0.3002
NILF	1	-0.3046	0.0902	11.3969	0.0007

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
Black	0.464	0.411	0.525
Asian	0.817	0.743	0.899
Latino	0.895	0.831	0.965
age	1.043	1.040	1.045
female	1.007	0.947	1.071
hours	0.998	0.995	1.000
Income2	1.335	1.238	1.439
Income3	3.275	3.029	3.541
HSGrad	1.600	1.454	1.762
SomeCollAA	1.962	1.778	2.166
BA	0.810	0.741	0.884
MA	0.725	0.636	0.827

The LOGISTIC Procedure

Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
PHD	0.725	0.592	0.888
Single	0.558	0.524	0.593
Private	0.592	0.532	0.659
SelfEmploy	1.380	1.238	1.539
Entrepreneur	0.714	0.464	1.098
Unemployed	0.914	0.771	1.084
NILF	0.737	0.618	0.880

Association of Predicted Probabilities and Observed Responses

Percent Concordant	77.3	Somers' D	0.549
Percent Discordant	22.5	Gamma	0.550
Percent Tied	0.2	Tau-a	0.263
Pairs	133368320	c	0.774