ECON 5336: Economic Data Analysis
Homework for Exam 3

1. (10 pts.)

Parts a. and b. are from HW7, #6.

a. Paste the Stata commands and output for the model regressing the log of wages on the dummy variables you created using *looks*, education, experience, and the square of experience (part l.).
-**Ans. Commands for creating dummy variables of looks:**

```
gen looks_1=1 if looks==1
(1,187 missing values generated)

. replace looks_1=0 if looks!=1
(1,187 real changes made)

. gen looks_2=1 if looks==2
(1,064 missing values generated)

. replace looks_2=0 if looks!=2
(1,064 real changes made)

. gen looks_3=1 if looks==3
(519 missing values generated)

. replace looks_3=0 if looks!=3
(519 real changes made)

. gen looks_4=1 if looks==4
(848 missing values generated)

. replace looks_4=0 if looks!=4
(848 real changes made)

. gen looks_5=1 if looks==5
(1,182 missing values generated)

. replace looks_5=0 if looks!=5
(1,182 real changes made)
```

Command to run the regression:

```
regress lwage looks_2 looks_3 looks_4 looks_5 educ exper expersq
```

Stata output:

```
      Source |       SS           df       MS                      Number of obs   =     1,200
-------------+----------------------------------------------       F(7, 1192)      =     56.00
       Model |  105.082301         7  15.0117573                   Prob > F        =    0.0000
    Residual |  319.551756     1,192  .268080333                   R-squared       =    0.2475
-------------+----------------------------------------------       Adj R-squared   =    0.2430
       Total |  424.634058     1,199  .354156845                   Root MSE        =    .51776

------------------------------------------------------------------------------
       lwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     looks_2 |   .1680337   .1510679     1.11   0.266    -.1283549    .4644223
     looks_3 |    .330405   .1458522     2.27   0.024     .0442494    .6165606
     looks_4 |   .3120389   .1478377     2.11   0.035     .0219878    .6020899
     looks_5 |   .5590603   .1902477     2.94   0.003     .1858027    .9323179
        educ |   .0689375   .0059573    11.57   0.000     .0572496    .0806254
       exper |   .0500662   .0048685    10.28   0.000     .0405144    .0596179
     expersq |  -.0007236   .0001096    -6.60   0.000    -.0009386   -.0005085
       _cons |  -.0810732   .1624609    -0.50   0.618    -.3998144     .237668
------------------------------------------------------------------------------
```

b. Interpret the coefficient on the dummy variable representing the category *looks* = 5.
Ans. looks_5 (hat) = 0.5590
Interpretation: People with looks of type looks_5 earn 56% more wages than people with looks of type looks_1

Parts c., d., and e. are from HW7, #7.

c. Paste the Stata commands and output for the probit model that predicts the probability of smoking as a function of years of education, age, and whether or not the person lives in a state where restaurant smoking restrictions exist (part a.).
Ans.

```
gen smoke= cigs>0

probit smoke age educ restaurn

Iteration 0:   log likelihood = -537.50555
Iteration 1:   log likelihood = -521.66224
Iteration 2:   log likelihood = -521.62644
Iteration 3:   log likelihood = -521.62644

Probit regression                                 Number of obs     =        807
                                                  LR chi2(3)        =      31.76
                                                  Prob > chi2       =     0.0000
```

Log likelihood = -521.62644 Pseudo R2 = 0.0295

smoke	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	-.0100854	.0027747	-3.63	0.000	-.0155236	-.0046472
educ	-.0619906	.0155218	-3.99	0.000	-.0924128	-.0315685
restaurn	-.2735998	.1076051	-2.54	0.011	-.4845019	-.0626976
_cons	.9499866	.2465481	3.85	0.000	.4667612	1.433212

d. Calculate the marginal effect from multiple choice problem #3 on HW7.
Ans.

Command:
. display normal(0.9499866+(-0.0619906*12)+(-0.0100854*30)-0.2735998)-
normal(0.9499+(-0.0619906*16)+(-0.0100854*30)-0.2735998)
Output:
.0873885

e. Calculate the marginal effect from multiple choice problem #4 on HW7.
Command:
. display normal(0.9499866+(-0.0619906*12)+(-0.0100854*35))*0.9499866
Output:
.41952318

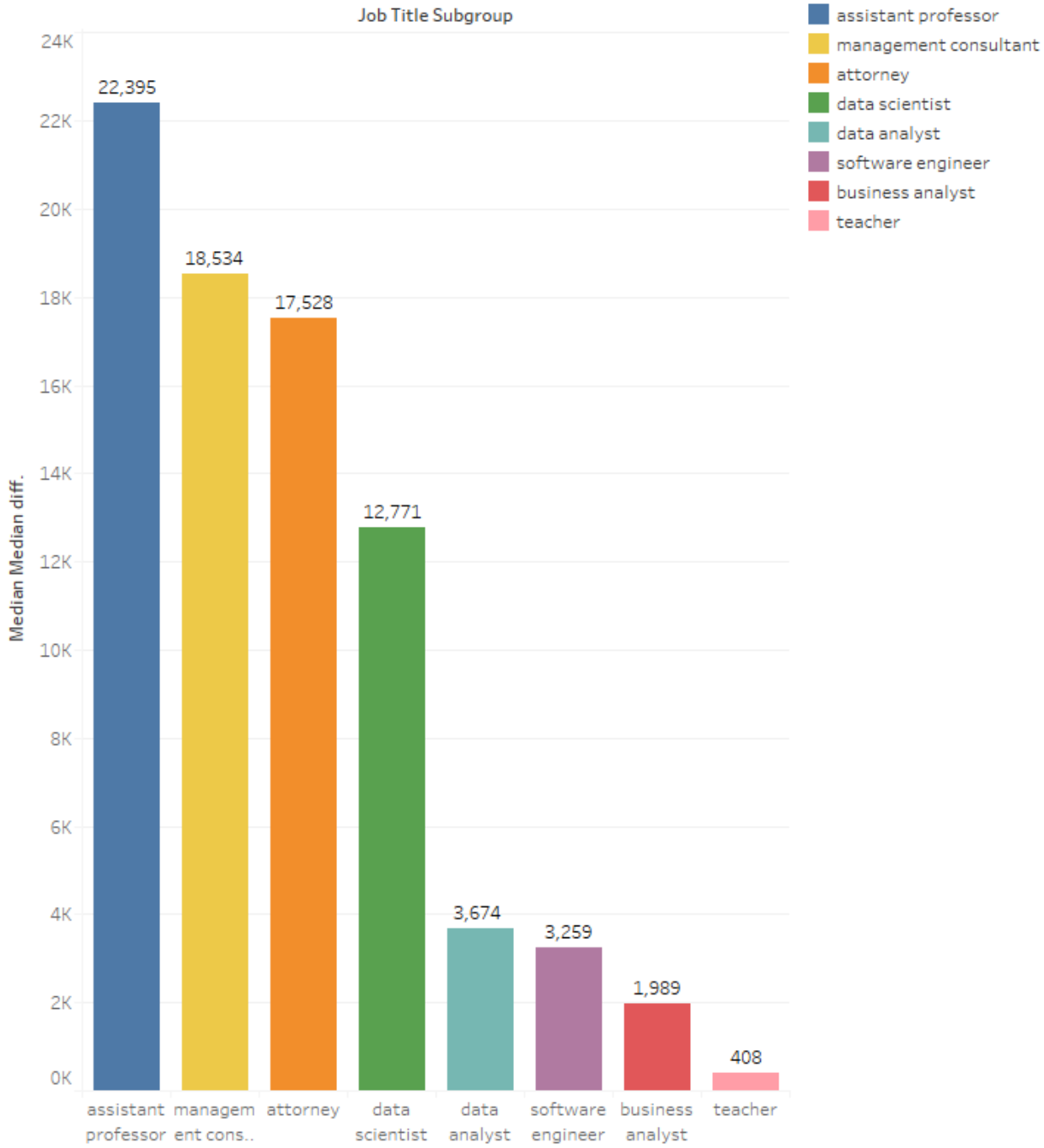
2. (10 pts.) **Tableau Exercise to Upload**

Using the same dataset used in class, answer the below questions. For each question, type or write in the answer and then paste a Tableau graph into this document that allowed you to answer the question.

a. Consider the difference between the paid wage and the prevailing wage by job title subgroup.

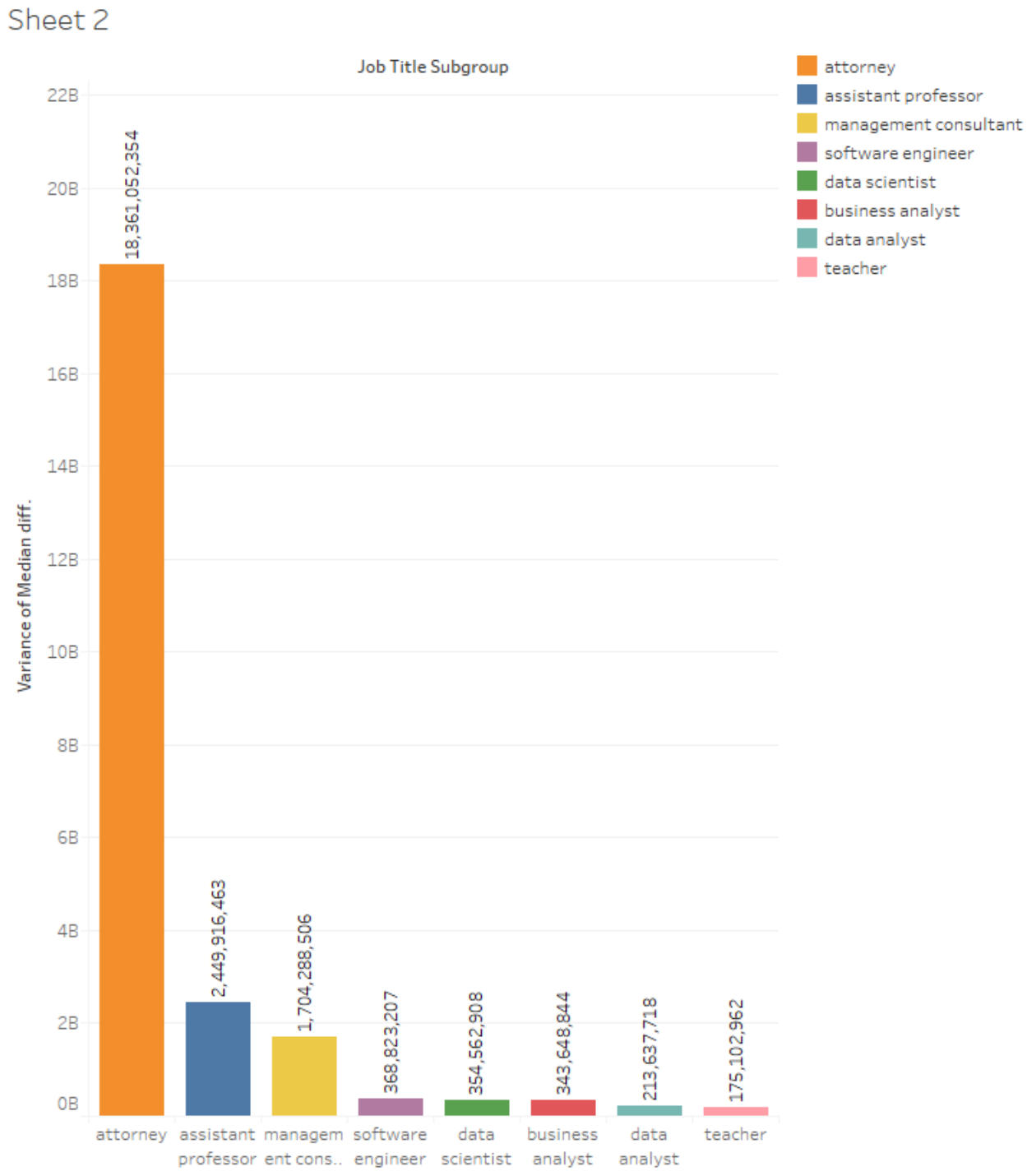
Which job title has the highest median difference (paid wage – prevailing wage)?
Ans. Assistant Professor: $22,395

Sheet 2



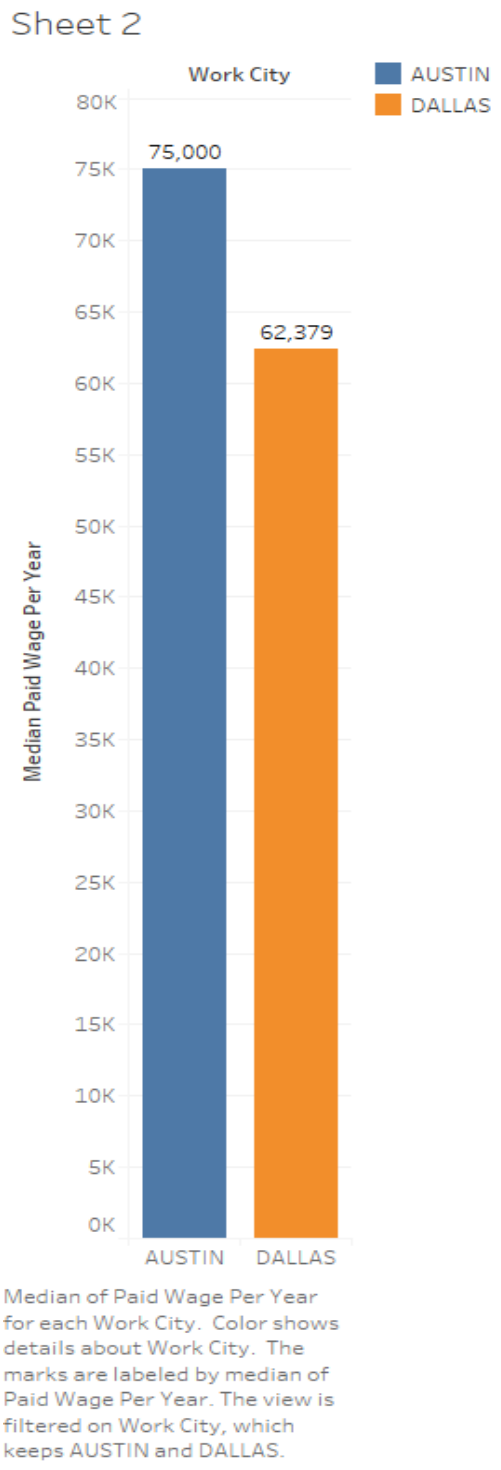
Median of Median diff. for each Job Title Subgroup. Color shows details about Job Title Subgroup. The marks are labeled by median of Median diff..

Which job title has the highest variance in the difference?
Ans. Attorney.



Variance of Median diff. for each Job Title Subgroup. Color shows details about Job Title Subgroup. The marks are labeled by variance of Median diff..

b. Graph the median paid wage for Austin and Dallas.



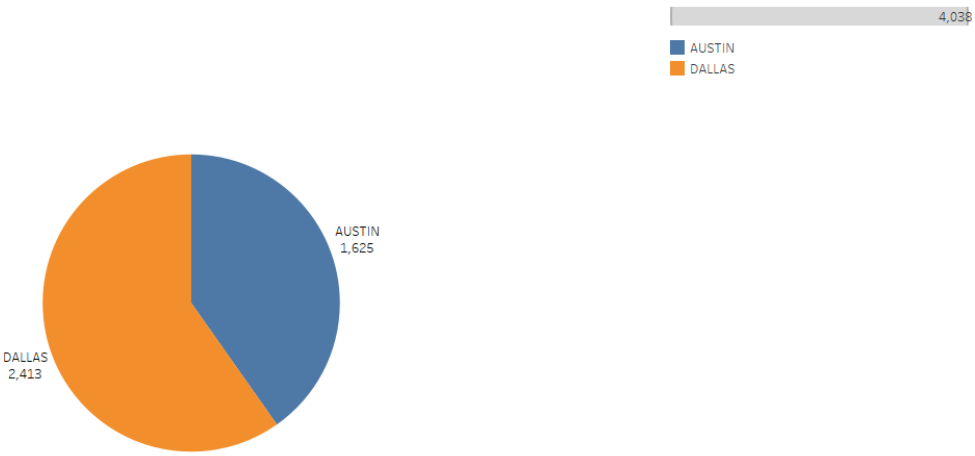
Which city has the highest median paid wage overall?

Ans. Austin

How many records are there for each city?

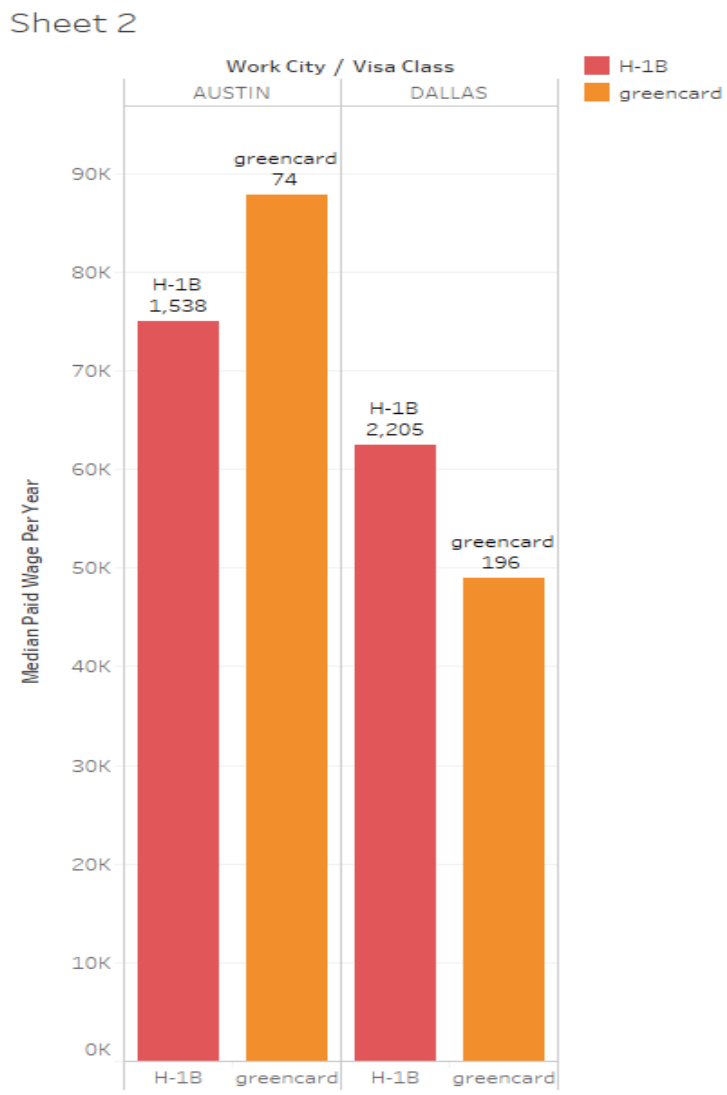
Ans. Austin: 1625, Dallas: 2413

Sheet 1



Work City and sum of Number of Records. Color shows details about Work City. Size shows sum of Number of Records. The marks are labeled by Work City and sum of Number of Records. The view is filtered on Work City, which keeps AUSTIN and DALLAS.

c. Graph the median paid wage for Austin and Dallas by visa class. Filter the results so that only bar charts are shown for visa classes in which the number of records is at least 50.



Median of Paid Wage Per Year for each Visa Class broken down by Work City. Color shows details about Visa Class. The marks are labeled by Visa Class and sum of Number of Records. The data is filtered on count of Number of Records, which includes values greater than or equal to 50. The view is filtered on Work City, which keeps AUSTIN and DALLAS.

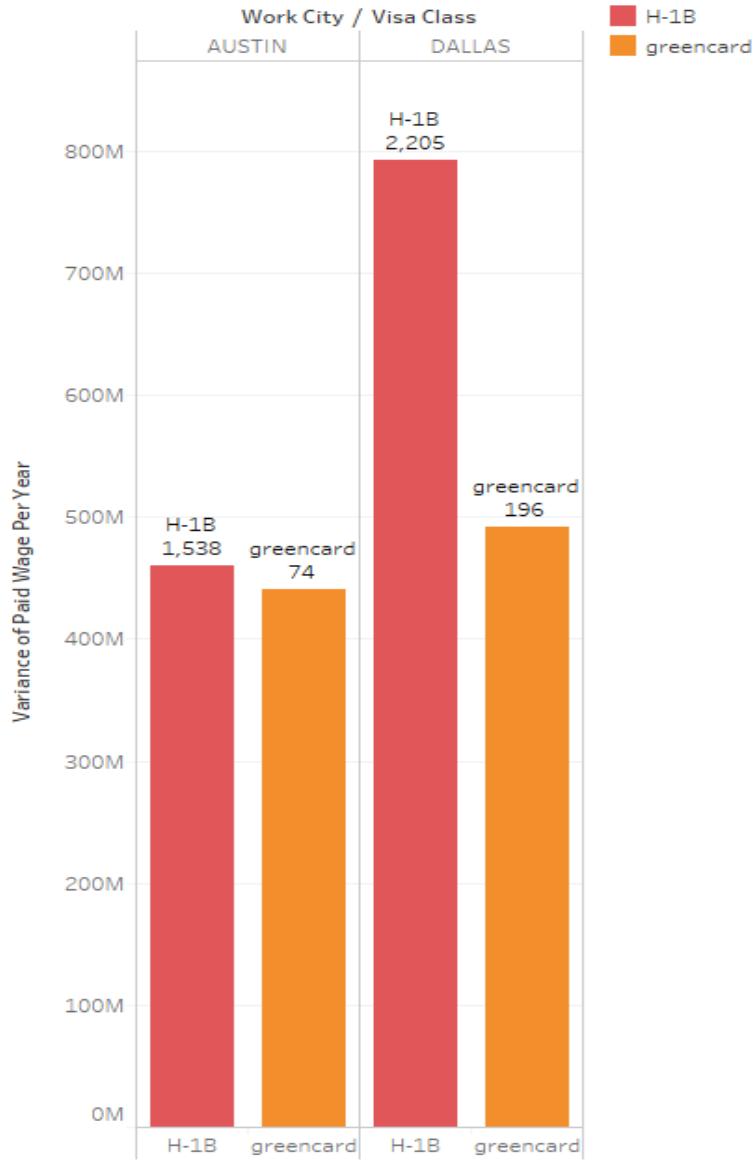
Which visa classes have at least 50 records for Austin and Dallas?
Ans. H1-B and Greencard

Which city has higher median wages in each of these visa categories?
Ans. Austin for both

Which city has higher variance in wages paid in each of these visa categories?

Ans. Dallas

Sheet 2



Variance of Paid Wage Per Year for each Visa Class broken down by Work City. Color shows details about Visa Class. The marks are labeled by Visa Class and sum of Number of Records. The data is filtered on count of Number of Records, which includes values greater than or equal to 50. The view is filtered on Work City, which keeps AUSTIN and DALLAS.

(IPUMS HW)

Preliminary Data Manipulation

First, remember to start a STATA log! You may do the following exercises interactively or by creating a do-file first. It's up to you. The codes for the variables of interest can be found here: https://usa.ipums.org/usa-action/variables/group by navigating to the variable of interest and clicking on "codes." Remember to consult the codes before creating any new variables.

Age:

Let's look at adults aged 18 – 60 for purposes of this exercise. To remove everyone else, type **drop if age<18 | age>60**

Year Dummy Variables:

Have a look at your data in the data browser. Note that IPUMS has created a year variable. Let's create dummy variable for each year:

gen byte yr10 = year == 2010
gen byte yr16 = year == 2016

(Note: To save memory, when creating *dummy* variables, type **gen byte**….instead of gen)

Cleaning Up the Wage Variable:

Let's focus on the wage variable INCWAGE, which is measured as dollars. This variable is collected for those who are 16 years or older, and since we now have only those 18+ in our dataset, we do not have missing values for INCWAGE.

Recall that we have two years' worth of data, and we must transform the income variables into real dollars. Let's convert everything to 2000 dollars, because IPUMS makes this easy for us to do: https://usa.ipums.org/usa/cpi99.shtml

gen realincwage = incwage*0.694 if yr16==1
replace realincwage = incwage*0.764 if yr10==1

Questions

1. Create dummy variables for REGION (neast, mwest, south, west) based on these codes: https://usa.ipums.org/usa-action/variables/REGION#codes_section

Find the *fraction of the population* that lived in each region in 2010 and 2016 using STATA descriptive commands and fill in the table below.

	2010	2016
Northeast	18.02%	17.96%
Midwest	21.78%	21.15%
South	36.87%	37.04%
West	23.33%	23.85%

2. Create dummy variables for SEX (female, male)
https://usa.ipums.org/usa-action/variables/SEX#codes_section

Create dummy variable for MARST (married, separated/divorced, never married, and widowed – name the variables whatever you'd like)
https://usa.ipums.org/usa-action/variables/MARST#codes_section

Create dummy variables for RACE (white, black, Asian other). Asian should include codes 4-6, while other should include codes 3, 7-9.
https://usa.ipums.org/usa-action/variables/RACE#codes_section

(Note: If you want to make sure we are covering all values of a variable when we create dummies, MARST, for example, type **inspect marst**.)

Find the *fraction of white and black women 18 and over* that are married, never married, separated or divorced, and widowed in 2010 and 2016 using STATA descriptive commands and fill in the table below.

	White Women		**Black Women**	
	2010	2016	2010	2016
Married	58.95%	56.23%	30.45%	28.99%
Never Married	24.54%	28.27%	47.10%	51.50%
Sep. or Div.	14.60%	13.68%	19.47%	17.05%
Widowed	1.92%	1.82%	2.98%	2.46%

3. Create dummy variable for EMPSTAT (employed, unemployed, not in labor force)
https://usa.ipums.org/usa-action/variables/EMPSTAT#codes_section

Fill in the following table with the fraction of women that fall into each category:

	Married Women		Never Married Women	
	2010	2016	2010	2016
Not in Labor Force	27.09%	27.54%	26.15%	27.255%
Employed	67.93%	69.95%	63.95%	66.90%
Unemployed	4.99%	2.51%	9.90%	5.84%

4. Notice that EDUC gives us highest educational attainment completed.
https://usa.ipums.org/usa-action/variables/EDUC#codes_section

Create the following dummy variables for the following categories:
lesshighschool (less than Grade 12 completed)
highschool (Grade 12 completed)
somecollege (1-3 years of college)
college (4 years of college, approximately bachelor's)
morecollege (5+ years of college, more than bachelor's)

Fill in the following table with the fraction of men and women in each educational category:

	Women		Men	
	2010	2016	2010	2016
Less than High School	8.93%	7.70%	11.68%	10.28%
High School	34.35%	32.32%	38.53%	38.30%
Some College	26.78%	26.77%	23.48%	23.53%
Bachelor's	19.60%	21.22%	17.12%	18.14%
More than Bachelor's	10.33%	11.98%	9.18%	9.76%

5. Time to run some regressions. First, create the following variable:
   - lnwage – the natural logarithm of real wage income

Now run the following regression:
reg lnwage highschool somecollege college morecollege male black white asian neast mwest west married age yr16, robust

a. Report the results below (you can copy and paste the Stata output here):

. reg lnwage highschool somecollege college morecollege male black white asian neast mwest west married age yr16, robust

Linear regression Number of obs = 2,582,352
F(14, 2582337) = 71136.84
Prob > F = 0.0000
R-squared = 0.3013
Root MSE = 1.032

lnwage	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
highschool	.3606496	.0028625	125.99	0.000	.3550393	.36626
somecollege	.5595063	.0029367	190.52	0.000	.5537505	.565262
college	1.073257	.0029819	359.92	0.000	1.067412	1.079101
morecollege	1.372619	.0031772	432.02	0.000	1.366391	1.378846
male	.4219109	.0012992	324.75	0.000	.4193645	.4244572
black	-.0524983	.0033535	-15.65	0.000	-.059071	-.0459256
white	.0531982	.0026275	20.25	0.000	.0480484	.0583479
asian	-.0064639	.0037785	-1.71	0.087	-.0138696	.0009419
neast	.0469418	.0018591	25.25	0.000	.0432981	.0505855
mwest	-.0541772	.0017249	-31.41	0.000	-.057558	-.0507963
west	.0420956	.0017816	23.63	0.000	.0386037	.0455876
married	.3367172	.0013785	244.26	0.000	.3340153	.339419
age	.0298135	.0000593	502.63	0.000	.0296972	.0299297
yr16	.1127745	.0012867	87.65	0.000	.1102527	.1152963
_cons	7.826566	.0041781	1873.24	0.000	7.818377	7.834755

b. Interpret the coefficient on the college educational attainment variable.

Ans. college(hat) = 1.07.
People with 4 years of college education earn **<u>107% more</u>** than people with less than Grade 12 completed.

c. Based on the model above, is there a "marriage premium?" In other words, do married workers, all else constant, earn more than unmarried workers?

Ans. married(hat) = 0.3367
Married people earn **<u>33.67% more</u>** than unmarried people.

6. Now estimate the above model separately for men and women.

a. Report the results below.

For Male:

```
. reg lnwage highschool somecollege college morecollege male black white asian neast mwest
west married age yr16 if male == 1
note: male omitted because of collinearity

      Source |       SS           df       MS                    Number of obs   = 1,325,937
-------------+----------------------------------   F(13, 1325923)  =  52822.68
       Model |  678752.659        13   52211.743   Prob > F        =    0.0000
    Residual |   1310587.7 1,325,923  .988434245   R-squared       =    0.3412
-------------+----------------------------------   Adj R-squared   =    0.3412
       Total |  1989340.36 1,325,936  1.50032909   Root MSE        =     .9942

------------------------------------------------------------------------------
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  highschool |   .3481911   .0033726   103.24   0.000     .3415809    .3548012
 somecollege |   .5182328   .0035259   146.98   0.000     .5113221    .5251435
     college |   1.034814   .0036437   284.00   0.000     1.027672    1.041955
 morecollege |   1.295727   .0040774   317.78   0.000     1.287735    1.303718
        male |          0  (omitted)
       black |  -.1768923   .0044172   -40.05   0.000    -.1855499   -.1682347
       white |   .0919797   .0033988    27.06   0.000     .0853182    .0986412
       asian |  -.0390203   .0049371    -7.90   0.000    -.0486968   -.0293438
       neast |   .0425777   .0025045    17.00   0.000      .037669    .0474864
       mwest |  -.0575763   .0023494   -24.51   0.000     -.062181   -.0529716
        west |   .0331819   .0023395    14.18   0.000     .0285966    .0377673
     married |   .5408533   .0019489   277.52   0.000     .5370335    .5446731
         age |   .0289404   .0000784   369.05   0.000     .0287867    .0290941
        yr16 |   .1311076   .0017298    75.79   0.000     .1277172    .1344979
       _cons |   8.175908   .0050296  1625.56   0.000     8.166051    8.185766
------------------------------------------------------------------------------
```

For Female:

```
. reg lnwage highschool somecollege college morecollege male black white asian neast mwest
west married age yr16 if female == 1

      Source |       SS           df       MS      Number of obs   = 1,256,415
-------------+----------------------------------   F(13, 1256401)  =  30938.21
       Model |  450592.613        13  34660.9703   Prob > F        =    0.0000
    Residual |  1407582.15 1,256,401  1.12032874   R-squared       =    0.2425
-------------+----------------------------------   Adj R-squared   =    0.2425
       Total |  1858174.77 1,256,414  1.47895102   Root MSE        =    1.0585

------------------------------------------------------------------------------
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  highschool |   .3924307   .0045048    87.11   0.000     .3836015      .40126
 somecollege |   .6131415   .0045396   135.06   0.000     .6042439     .622039
     college |   1.123926   .0046395   242.25   0.000     1.114832    1.133019
 morecollege |   1.454171   .0049541   293.53   0.000     1.444461    1.463881
```

```
      male |          0  (omitted)
     black |   .0321392   .0047491     6.77   0.000     .0228311    .0414473
     white |   .0164772   .0038863     4.24   0.000     .0088602    .0240941
     asian |   .0376231     .00543     6.93   0.000     .0269805    .0482658
     neast |   .0550506   .0027058    20.35   0.000     .0497473    .0603538
     mwest |  -.0435447   .0025619   -17.00   0.000     -.048566   -.0385235
      west |   .0543266   .0026173    20.76   0.000     .0491969    .0594563
   married |   .1378384   .0020474    67.32   0.000     .1338256    .1418513
       age |   .0298238   .0000814   366.49   0.000     .0296643    .0299833
      yr16 |   .0957571   .0018924    50.60   0.000      .092048    .0994661
     _cons |    7.90227   .0061453  1285.89   0.000     7.890225    7.914314
------------------------------------------------------------------------------
```

b. Is there a marriage premium for men and women, and are they statistically significant? If so, interpret the coefficient(s).

Ans. Yes, since coefficients for married men and women are both positive. Also, since P value for married = 0 in both cases, it is statistically significant as well.

Married men earn **54.08%** more than unmarried men.
Married women earn **13.78%** more than unmarried women.

7. Estimate the following probit marginal effects separately for men and women:

dprobit employed married highschool somecollege college morecollege black white asian nchlt5 age yr16, robust

a. Report your results.

For men:

```
. dprobit emp married highschool somecollege college morecollege black white asian nchlt5 age yr16 if male == 1, robust

Iteration 0:   log pseudolikelihood = -962997.77
Iteration 1:   log pseudolikelihood = -846517.25
Iteration 2:   log pseudolikelihood =  -843825.1
Iteration 3:   log pseudolikelihood = -843810.58
Iteration 4:   log pseudolikelihood = -843810.58

Probit regression, reporting marginal effects           Number of obs =1704287
                                                        Wald chi2(11) = 2.0e+05
                                                        Prob > chi2   = 0.0000
Log pseudolikelihood = -843810.58                       Pseudo R2     = 0.1238

------------------------------------------------------------------------------
             |               Robust
         emp |      dF/dx   Std. Err.      z    P>|z|     x-bar  [    95% C.I.   ]
-------------+----------------------------------------------------------------
     married*|    .190847   .0007434   252.70   0.000    .514134    .18939  .192304
  highsc~l*|   .1185529   .0009341   121.77   0.000    .384158   .116722  .120384
  someco~e*|   .1562339   .0008318   161.29   0.000     .23506   .154604  .157864
     college*|   .2197569   .0006786   226.63   0.000    .176297   .218427  .221087
  moreco~e*|   .2157866   .0006186   195.16   0.000    .094706   .214574  .216999
     black*|  -.1297785   .0017662   -79.75   0.000    .105027   -.13324 -.126317
     white*|   .0081183   .0012367     6.60   0.000    .763456   .005694  .010542
     asian*|  -.0449383   .0020542   -22.84   0.000    .053939  -.048965 -.040912
    nchlt5 |   .0735034   .0010051    72.61   0.000    .156169   .071533  .075473
       age |  -.0002204   .0000291    -7.59   0.000    39.6741  -.000277 -.000164
     yr16*|   .0274234   .0006594    41.59   0.000    .502566   .026131  .028716
-------------+----------------------------------------------------------------
    obs. P |   .7475191
   pred. P |    .778276  (at x-bar)
------------------------------------------------------------------------------
(*) dF/dx is for discrete change of dummy variable from 0 to 1
    z and P>|z| correspond to the test of the underlying coefficient being 0
```

For women:

```
. dprobit emp married highschool somecollege college morecollege black white asian nchlt5 age yr16 if female == 1, robust

Iteration 0:   log pseudolikelihood =   -1092372
Iteration 1:   log pseudolikelihood = -1034841.6
Iteration 2:   log pseudolikelihood = -1034640.5
```

```
Iteration 3:   log pseudolikelihood = -1034640.5

Probit regression, reporting marginal effects          Number of obs =1745342
                                                       Wald chi2(11) = 1.1e+05
                                                       Prob > chi2   = 0.0000
Log pseudolikelihood = -1034640.5                      Pseudo R2     = 0.0528

------------------------------------------------------------------------------
             |               Robust
         emp |      dF/dx   Std. Err.      z    P>|z|     x-bar  [    95% C.I.   ]
-------------+----------------------------------------------------------------
     married*|  -.0046299   .0007882    -5.87   0.000    .53956  -.006175 -.003085
    highsc~l*|   .1736865   .0011801   138.23   0.000    .333406   .171374  .175999
    someco~e*|   .2410333   .0010563   197.51   0.000    .267757   .238963  .243104
     college*|   .2898352   .0009015   244.96   0.000    .204103   .288068  .291602
    moreco~e*|   .3058415   .0007105   256.66   0.000    .111537   .304449  .307234
       black*|   .0027258   .0016693     1.63   0.103    .110775  -.000546  .005998
       white*|   .0229931   .0013905    16.66   0.000    .754994   .020268  .025718
       asian*|  -.0490349   .0020772   -24.19   0.000    .060101  -.053106 -.044964
      nchlt5 |  -.0728054   .0007582   -96.03   0.000    .182918  -.074292 -.071319
         age |    .000253   .0000321     7.89   0.000     40.164    .00019  .000316
       yr16*|   .0121233   .0007146    16.96   0.000    .497585   .010723  .013524
-------------+----------------------------------------------------------------
      obs. P |   .6813095
     pred. P |   .6900532  (at x-bar)
------------------------------------------------------------------------------
(*) dF/dx is for discrete change of dummy variable from 0 to 1
    z and P>|z| correspond to the test of the underlying coefficient being 0
```

b. What differences do you notice between the men and women?

Ans.

- Married men are **19.08%** more likely to be employed than unmarried men whereas Married women are **0.4%** less likely to be employed than unmarried woman.
- Men with Grade 12 completed are **11.85%** more likely to be employed than Men with less than grade 12 completed whereas Women with grade 12 completed are **17.36%** more likely to be employed than women with less than grade 12 completed.
- Men with 1-3 yrs of college education are **15.62%** more likely to be employed than men with less than grade 12 completed whereas Women with 1-3 yrs of college education are **24.10%** more lilely to be employed than women with less than grade 12 completed.
- Men with 4 yrs of college education are **22%** more likely to be employed than men with less than grade 12 completed whereas women with 4 yrs of college education are 29% more liely to be employed than women with less than grade 12 completed.
- Men with 5+ years yrs of education are **21.57%** more likely to be employed than men with less than grade 12 completed whereas Women with 5+ yrs of education are **30.58%** more likely to be employed than women with less than grade 12 completed.
- Black men are **12.9% less likely** to be employed than men with other races whereas Black women are **0.2% more likely** to be employed than women with other races.

- White men are **0.8% more likely** to be employed than men with other races whereas white women are **2.2% more likely** to be employed than women with other races.
- Asian men are **4.4% less likely** to be employed than men with other races whereas Asian women are **4.9% less likely** to be employed than women with other races.
- Men with more no. of children under age 5 are **7.3% more likely** to be employed than men with less no. of children under age 5 whereas women with more no. of children under age 5 are **7.2% less likely** to be employed than women with less no. of children under age 5.

STATA log file for IPUMS:

```
-------------------------------------------------------------------------------------------------------------------------------
-------------------------------------
      name:  <unnamed>
       log:  C:\Users\aso5400\Desktop\IPUMS hw.log
  log type:  text
 opened on:   6 Dec 2017, 13:42:18

. use "C:\Users\aso5400\Desktop\usa_00001.dta", clear

. drop if age<18 | age>60
(2,768,550 observations deleted)

. gen byte yr10 = year == 2010

.
. gen byte yr16 = year == 2016

. gen realincwage = incwage*0.694 if yr16==1
(1,724,657 missing values generated)

.
. replace realincwage = incwage*0.764 if yr10=
> =1
(1,724,657 real changes made)

. *Q1

. gen neast = region == 11 | region == 12 | region == 13

. gen mwest = region == 21 | region == 22 | region == 23

. gen south = region == 31 | region == 32 | region == 33 | region == 34

. gen west = region == 41 | region == 42 | region == 43


. tabulate neast if yr10 == 1
```

```
     neast |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,413,879       81.98       81.98
         1 |    310,778       18.02      100.00
-----------+-----------------------------------
     Total |  1,724,657      100.00
```

```
. tabulate mwest if yr10 == 1
```

```
     mwest |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,348,991       78.22       78.22
         1 |    375,666       21.78      100.00
-----------+-----------------------------------
     Total |  1,724,657      100.00
```

```
. tabulate south if yr10 == 1
```

```
     south |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,088,823       63.13       63.13
         1 |    635,834       36.87      100.00
-----------+-----------------------------------
     Total |  1,724,657      100.00
```

```
. tabulate west if yr10 == 1
```

```
      west |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,322,278       76.67       76.67
         1 |    402,379       23.33      100.00
-----------+-----------------------------------
     Total |  1,724,657      100.00
```

```
. tabulate neast if yr16 == 1
```

```
     neast |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,415,104       82.04       82.04
         1 |    309,868       17.96      100.00
-----------+-----------------------------------
     Total |  1,724,972      100.00
```

```
. tabulate mwest if yr16 == 1
```

```
     mwest |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,360,123       78.85       78.85
         1 |    364,849       21.15      100.00
-----------+-----------------------------------
```

```
      Total |  1,724,972      100.00

. tabulate south if yr16 == 1

     south |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,086,054       62.96       62.96
         1 |    638,918       37.04      100.00
-----------+-----------------------------------
     Total |  1,724,972      100.00

. tabulate west if yr16 == 1

      west |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |  1,313,635       76.15       76.15
         1 |    411,337       23.85      100.00
-----------+-----------------------------------
     Total |  1,724,972      100.00.

. *Q2

. gen byte male = sex == 1

. gen byte female = sex == 2

. gen byte married = marst == 1 | marst == 2

. gen byte sep_div = marst == 3 | marst ==4

. gen byte nevmarried = marst == 6

. gen byte widwd = marst == 5

. gen byte white = race == 1

. gen byte black = race == 2

. gen byte asian = race == 4 | race == 5 | race == 6

. gen byte others = race == 3 | race == 7 | race == 8 | race == 9

. inspect marst

marst:  marital status                        Number of Observations
----------------------              ---------------------------------------
                                       Total      Integers   Nonintegers
|  #                    Negative           -             -             -
|  #                    Zero               -             -             -
|  #             #      Positive     3,449,629     3,449,629           -
|  #             #                  -----------   -----------   -----------
```

```
| #             #        Total       3,449,629     3,449,629           -
| #   .   .   #   #       Missing             -
+----------------------             -----------
1                  6               3,449,629
  (6 unique values)
```

marst is labeled and all values are documented in the label.

```
. inspect race

race:  race [general version]                  Number of Observations
------------------------------         ----------------------------------------
                                             Total      Integers   Nonintegers
| #                    Negative                -             -             -
| #                    Zero                    -             -             -
| #                    Positive        3,449,629     3,449,629           -
| #                                    -----------   -----------   -----------
| #                    Total           3,449,629     3,449,629           -
| #   .   .   .   .    Missing                 -
+----------------------             -----------
1                  9               3,449,629
  (9 unique values)
```

race is labeled and all values are documented in the label.

```
. tabulate married if female == 1 & race == 1 & yr10 == 1

   married |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |    275,027       41.05       41.05
         1 |    394,936       58.95      100.00
-----------+-----------------------------------
     Total |    669,963      100.00

. tabulate nevmarried if female == 1 & race == 1 & yr10 == 1

 nevmarried |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |    505,581       75.46       75.46
         1 |    164,382       24.54      100.00
------------+-----------------------------------
     Total |    669,963      100.00

. tabulate sep_div if female == 1 & race == 1 & yr10 == 1

   sep_div |      Freq.     Percent        Cum.
-----------+-----------------------------------
         0 |    572,160       85.40       85.40
         1 |     97,803       14.60      100.00
-----------+-----------------------------------
     Total |    669,963      100.00
```

```
. tabulate widwd if female == 1 & race == 1 & yr10 == 1

      widwd |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    657,121       98.08       98.08
          1 |     12,842        1.92      100.00
------------+-----------------------------------
      Total |    669,963      100.00

. tabulate married if female == 1 & race == 1 & yr16 == 1

    married |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    283,520       43.77       43.77
          1 |    364,239       56.23      100.00
------------+-----------------------------------
      Total |    647,759      100.00

. tabulate nevmarried if female == 1 & race == 1 & yr16 == 1

 nevmarried |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    464,638       71.73       71.73
          1 |    183,121       28.27      100.00
------------+-----------------------------------
      Total |    647,759      100.00

. tabulate sep_div if female == 1 & race == 1 & yr16 == 1

    sep_div |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    559,164       86.32       86.32
          1 |     88,595       13.68      100.00
------------+-----------------------------------
      Total |    647,759      100.00

. tabulate widwd if female == 1 & race == 1 & yr16 == 1

      widwd |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    635,955       98.18       98.18
          1 |     11,804        1.82      100.00
------------+-----------------------------------
      Total |    647,759      100.00

. tabulate married if female == 1 & race == 2 & yr10 == 1

    married |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     68,272       69.55       69.55
```

```
          1 |     29,887       30.45      100.00
------------+-----------------------------------
      Total |     98,159      100.00
```

```
. tabulate nevmarried if female == 1 & race == 2 & yr10 == 1

 nevmarried |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     51,926       52.90       52.90
          1 |     46,233       47.10      100.00
------------+-----------------------------------
      Total |     98,159      100.00
```

```
. tabulate sep_div if female == 1 & race == 2 & yr10 == 1

    sep_div |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     79,050       80.53       80.53
          1 |     19,109       19.47      100.00
------------+-----------------------------------
      Total |     98,159      100.00
```

```
. tabulate widwd if female == 1 & race == 2 & yr10 == 1

      widwd |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     95,229       97.02       97.02
          1 |      2,930        2.98      100.00
------------+-----------------------------------
      Total |     98,159      100.00
```

```
. tabulate married if female == 1 & race == 2 & yr16 == 1

    married |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     67,590       71.01       71.01
          1 |     27,592       28.99      100.00
------------+-----------------------------------
      Total |     95,182      100.00
```

```
. tabulate nevmarried if female == 1 & race == 2 & yr16 == 1

 nevmarried |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     46,160       48.50       48.50
          1 |     49,022       51.50      100.00
------------+-----------------------------------
      Total |     95,182      100.00
```

```
. tabulate sep_div if female == 1 & race == 2 & yr16 == 1
```

```
   sep_div |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |     78,951       82.95       82.95
         1 |     16,231       17.05      100.00
------------+-----------------------------------
     Total |     95,182      100.00
```

```
. tabulate widwd if female == 1 & race == 2 & yr16 == 1

     widwd |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |     92,845       97.54       97.54
         1 |      2,337        2.46      100.00
------------+-----------------------------------
     Total |     95,182      100.00.
```

```
.*Q3

. gen byte emp = empstat == 1

. gen byte unemp = empstat == 2

. gen byte nilbf = empstat == 3

. tabulate nilbf if female == 1 & married == 1 & yr10 == 1

     nilbf |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |    353,314       72.91       72.91
         1 |    131,247       27.09      100.00
------------+-----------------------------------
     Total |    484,561      100.00
```

```
. tabulate emp if female == 1 & married == 1 & yr10 == 1

       emp |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |    155,413       32.07       32.07
         1 |    329,148       67.93      100.00
------------+-----------------------------------
     Total |    484,561      100.00
```

```
. tabulate unemp if female == 1 & married == 1 & yr10 == 1

     unemp |      Freq.     Percent        Cum.
------------+-----------------------------------
         0 |    460,395       95.01       95.01
         1 |     24,166        4.99      100.00
------------+-----------------------------------
     Total |    484,561      100.00
```

. tabulate nilbf if female == 1 & married == 1 & yr16 == 1

nilbf	Freq.	Percent	Cum.
0	331,248	72.46	72.46
1	125,907	27.54	100.00
Total	457,155	100.00	

. tabulate emp if female == 1 & married == 1 & yr16 == 1

emp	Freq.	Percent	Cum.
0	137,386	30.05	30.05
1	319,769	69.95	100.00
Total	457,155	100.00	

. tabulate unemp if female == 1 & married == 1 & yr16 == 1

unemp	Freq.	Percent	Cum.
0	445,676	97.49	97.49
1	11,479	2.51	100.00
Total	457,155	100.00	

. tabulate nilbf if female == 1 & nevmarried == 1 & yr10 == 1

nilbf	Freq.	Percent	Cum.
0	181,084	73.85	73.85
1	64,113	26.15	100.00
Total	245,197	100.00	

. tabulate emp if female == 1 & nevmarried == 1 & yr10 == 1

emp	Freq.	Percent	Cum.
0	88,395	36.05	36.05
1	156,802	63.95	100.00
Total	245,197	100.00	

. tabulate unemp if female == 1 & nevmarried == 1 & yr10 == 1

unemp	Freq.	Percent	Cum.
0	220,915	90.10	90.10
1	24,282	9.90	100.00

```
------------+-----------------------------------
      Total |    245,197      100.00

. tabulate nilbf if female == 1 & nevmarried == 1 & yr16 == 1

      nilbf |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    201,774       72.75       72.75
          1 |     75,588       27.25      100.00
------------+-----------------------------------
      Total |    277,362      100.00

. tabulate emp if female == 1 & nevmarried == 1 & yr16 == 1

        emp |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |     91,797       33.10       33.10
          1 |    185,565       66.90      100.00
------------+-----------------------------------
      Total |    277,362      100.00

. tabulate unemp if female == 1 & nevmarried == 1 & yr16 == 1

      unemp |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    261,153       94.16       94.16
          1 |     16,209        5.84      100.00
------------+-----------------------------------
      Total |    277,362      100.00.

*Q4

. gen byte lesshighschool = educ == 00 | educ == 01 | educ == 02 | educ == 03 | educ == 04|
educ == 05

. gen byte highschool = educ == 06

. gen byte somecollege = educ == 07 | educ == 08 | educ == 09

. gen byte college = educ == 10

. gen byte morecollege = educ == 11

. tabulate lesshighschool if female == 1 & yr10 == 1

lesshighsch |
        ool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    798,563       91.07       91.07
          1 |     78,323        8.93      100.00
------------+-----------------------------------
```

```
      Total |    876,886      100.00

. tabulate highschool if female == 1 & yr10 == 1

 highschool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    575,692       65.65       65.65
          1 |    301,194       34.35      100.00
------------+-----------------------------------
      Total |    876,886      100.00

. tabulate somecollege if female == 1 & yr10 == 1

somecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    642,040       73.22       73.22
          1 |    234,846       26.78      100.00
------------+-----------------------------------
      Total |    876,886      100.00

. tabulate college if female == 1 & yr10 == 1

    college |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    704,979       80.40       80.40
          1 |    171,907       19.60      100.00
------------+-----------------------------------
      Total |    876,886      100.00

. tabulate morecollege if female == 1 & yr10 == 1

morecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    786,270       89.67       89.67
          1 |     90,616       10.33      100.00
------------+-----------------------------------
      Total |    876,886      100.00

. tabulate lesshighschool if female == 1 & yr16 == 1

lesshighsch |
        ool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    801,572       92.30       92.30
          1 |     66,884        7.70      100.00
------------+-----------------------------------
      Total |    868,456      100.00

. tabulate highschool if female == 1 & yr16 == 1

 highschool |      Freq.     Percent        Cum.
```

```
------------+-----------------------------------
          0 |    587,743       67.68       67.68
          1 |    280,713       32.32      100.00
------------+-----------------------------------
      Total |    868,456      100.00
```

```
. tabulate somecollege if female == 1 & yr16 == 1
```

```
somecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    635,974       73.23       73.23
          1 |    232,482       26.77      100.00
------------+-----------------------------------
      Total |    868,456      100.00
```

```
. tabulate college if female == 1 & yr16 == 1
```

```
    college |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    684,134       78.78       78.78
          1 |    184,322       21.22      100.00
------------+-----------------------------------
      Total |    868,456      100.00
```

```
. tabulate morecollege if female == 1 & yr16 == 1
```

```
morecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    764,401       88.02       88.02
          1 |    104,055       11.98      100.00
------------+-----------------------------------
      Total |    868,456      100.00
```

```
. tabulate lesshighschool if male == 1 & yr10 == 1
```

```
lesshighsch |
        ool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    748,713       88.32       88.32
          1 |     99,058       11.68      100.00
------------+-----------------------------------
      Total |    847,771      100.00
```

```
. tabulate highschool if male == 1 & yr10 == 1
```

```
 highschool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    521,104       61.47       61.47
          1 |    326,667       38.53      100.00
------------+-----------------------------------
      Total |    847,771      100.00
```

```
. tabulate somecollege if male == 1 & yr10 == 1

somecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    648,692       76.52       76.52
          1 |    199,079       23.48      100.00
------------+-----------------------------------
      Total |    847,771      100.00

. tabulate college if male == 1 & yr10 == 1

    college |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    702,649       82.88       82.88
          1 |    145,122       17.12      100.00
------------+-----------------------------------
      Total |    847,771      100.00

. tabulate morecollege if male == 1 & yr10 == 1

morecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    769,926       90.82       90.82
          1 |     77,845        9.18      100.00
------------+-----------------------------------
      Total |    847,771      100.00

. tabulate lesshighschool if male == 1 & yr16 == 1

lesshighsch |
        ool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    768,479       89.72       89.72
          1 |     88,037       10.28      100.00
------------+-----------------------------------
      Total |    856,516      100.00

. tabulate highschool if male == 1 & yr16 == 1

 highschool |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    528,467       61.70       61.70
          1 |    328,049       38.30      100.00
------------+-----------------------------------
      Total |    856,516      100.00

. tabulate somecollege if male == 1 & yr16 == 1

somecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
```

```
        0 |    654,986       76.47       76.47
        1 |    201,530       23.53      100.00
----------+-----------------------------------
    Total |    856,516      100.00
```

```
. tabulate college if male == 1 & yr16 == 1

   college |      Freq.     Percent        Cum.
----------+-----------------------------------
        0 |    701,178       81.86       81.86
        1 |    155,338       18.14      100.00
----------+-----------------------------------
    Total |    856,516      100.00
```

```
. tabulate morecollege if male == 1 & yr16 == 1

morecollege |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |    772,954       90.24       90.24
          1 |     83,562        9.76      100.00
------------+-----------------------------------
      Total |    856,516      100.00
```

```
*Q5

. gen lnwage = ln( incwage )
(867,277 missing values generated)

. *Q5 a)

. reg lnwage highschool somecollege college morecollege male black white asian neast mwest
west married age yr16, robust

Linear regression                               Number of obs     =  2,582,352
                                                F(14, 2582337)    =   71136.84
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3013
                                                Root MSE          =      1.032

------------------------------------------------------------------------------
             |               Robust
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  highschool |   .3606496   .0028625   125.99   0.000     .3550393      .36626
 somecollege |   .5595063   .0029367   190.52   0.000     .5537505     .565262
     college |   1.073257   .0029819   359.92   0.000     1.067412    1.079101
 morecollege |   1.372619   .0031772   432.02   0.000     1.366391    1.378846
        male |   .4219109   .0012992   324.75   0.000     .4193645    .4244572
       black |  -.0524983   .0033535   -15.65   0.000     -.059071   -.0459256
       white |   .0531982   .0026275    20.25   0.000     .0480484    .0583479
       asian |  -.0064639   .0037785    -1.71   0.087    -.0138696    .0009419
```

```
       neast |   .0469418   .0018591    25.25   0.000     .0432981    .0505855
       mwest |  -.0541772   .0017249   -31.41   0.000     -.057558   -.0507963
        west |   .0420956   .0017816    23.63   0.000     .0386037    .0455876
     married |   .3367172   .0013785   244.26   0.000     .3340153     .339419
         age |   .0298135   .0000593   502.63   0.000     .0296972    .0299297
        yr16 |   .1127745   .0012867    87.65   0.000     .1102527    .1152963
       _cons |   7.826566   .0041781  1873.24   0.000     7.818377    7.834755
------------------------------------------------------------------------------
```

*Q6 a)

```
. reg lnwage highschool somecollege college morecollege male black white asian neast mwest
west married age yr16 if male == 1
note: male omitted because of collinearity

      Source |       SS           df       MS      Number of obs   = 1,325,937
-------------+----------------------------------   F(13, 1325923)  =  52822.68
       Model |  678752.659        13   52211.743   Prob > F        =    0.0000
    Residual |   1310587.7 1,325,923  .988434245   R-squared       =    0.3412
-------------+----------------------------------   Adj R-squared   =    0.3412
       Total |  1989340.36 1,325,936  1.50032909   Root MSE        =     .9942

------------------------------------------------------------------------------
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  highschool |   .3481911   .0033726   103.24   0.000     .3415809    .3548012
 somecollege |   .5182328   .0035259   146.98   0.000     .5113221    .5251435
    college |   1.034814   .0036437   284.00   0.000     1.027672    1.041955
 morecollege |   1.295727   .0040774   317.78   0.000     1.287735    1.303718
        male |          0  (omitted)
       black |  -.1768923   .0044172   -40.05   0.000    -.1855499   -.1682347
       white |   .0919797   .0033988    27.06   0.000     .0853182    .0986412
       asian |  -.0390203   .0049371    -7.90   0.000    -.0486968   -.0293438
       neast |   .0425777   .0025045    17.00   0.000      .037669    .0474864
       mwest |  -.0575763   .0023494   -24.51   0.000     -.062181   -.0529716
        west |   .0331819   .0023395    14.18   0.000     .0285966    .0377673
     married |   .5408533   .0019489   277.52   0.000     .5370335    .5446731
         age |   .0289404   .0000784   369.05   0.000     .0287867    .0290941
        yr16 |   .1311076   .0017298    75.79   0.000     .1277172    .1344979
       _cons |   8.175908   .0050296  1625.56   0.000     8.166051    8.185766
------------------------------------------------------------------------------

. reg lnwage highschool somecollege college morecollege male black white asian neast mwest
west married age yr16 if female == 1
note: male omitted because of collinearity

      Source |       SS           df       MS      Number of obs   = 1,256,415
-------------+----------------------------------   F(13, 1256401)  =  30938.21
       Model |  450592.613        13  34660.9703   Prob > F        =    0.0000
    Residual |  1407582.15 1,256,401  1.12032874   R-squared       =    0.2425
-------------+----------------------------------   Adj R-squared   =    0.2425
```

```
       Total |  1858174.77 1,256,414  1.47895102   Root MSE       =    1.0585

------------------------------------------------------------------------------
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  highschool |   .3924307   .0045048    87.11   0.000     .3836015      .40126
 somecollege |   .6131415   .0045396   135.06   0.000     .6042439     .622039
     college |   1.123926   .0046395   242.25   0.000     1.114832    1.133019
 morecollege |   1.454171   .0049541   293.53   0.000     1.444461    1.463881
        male |          0  (omitted)
       black |   .0321392   .0047491     6.77   0.000     .0228311    .0414473
       white |   .0164772   .0038863     4.24   0.000     .0088602    .0240941
       asian |   .0376231     .00543     6.93   0.000     .0269805    .0482658
       neast |   .0550506   .0027058    20.35   0.000     .0497473    .0603538
       mwest |  -.0435447   .0025619   -17.00   0.000     -.048566   -.0385235
        west |   .0543266   .0026173    20.76   0.000     .0491969    .0594563
     married |   .1378384   .0020474    67.32   0.000     .1338256    .1418513
         age |   .0298238   .0000814   366.49   0.000     .0296643    .0299833
        yr16 |   .0957571   .0018924    50.60   0.000      .092048    .0994661
       _cons |    7.90227   .0061453  1285.89   0.000     7.890225    7.914314
------------------------------------------------------------------------------
```

```
.*Q7

. dprobit emp married highschool somecollege college morecollege black white asian nchlt5 age
yr16 if male == 1, robust

Iteration 0:   log pseudolikelihood = -962997.77
Iteration 1:   log pseudolikelihood = -846517.25
Iteration 2:   log pseudolikelihood =  -843825.1
Iteration 3:   log pseudolikelihood = -843810.58
Iteration 4:   log pseudolikelihood = -843810.58

Probit regression, reporting marginal effects           Number of obs =1704287
                                                Wald chi2(11) = 2.0e+05
                                                Prob > chi2   = 0.0000
Log pseudolikelihood = -843810.58                       Pseudo R2     = 0.1238

------------------------------------------------------------------------------
             |               Robust
         emp |      dF/dx   Std. Err.      z    P>|z|     x-bar  [    95% C.I.   ]
-------------+----------------------------------------------------------------
     married*|    .190847   .0007434   252.70   0.000   .514134    .18939  .192304
highsc~l*|   .1185529   .0009341   121.77   0.000   .384158   .116722  .120384
someco~e*|   .1562339   .0008318   161.29   0.000    .23506   .154604  .157864
     college*|   .2197569   .0006786   226.63   0.000   .176297   .218427  .221087
moreco~e*|   .2157866   .0006186   195.16   0.000   .094706   .214574  .216999
       black*|  -.1297785   .0017662   -79.75   0.000   .105027   -.13324 -.126317
       white*|   .0081183   .0012367     6.60   0.000   .763456   .005694  .010542
       asian*|  -.0449383   .0020542   -22.84   0.000   .053939  -.048965 -.040912
```

```
  nchlt5 |   .0735034   .0010051    72.61   0.000   .156169   .071533  .075473
     age |  -.0002204   .0000291    -7.59   0.000   39.6741  -.000277 -.000164
   yr16*|   .0274234   .0006594    41.59   0.000   .502566   .026131  .028716
---------+--------------------------------------------------------------------
  obs. P |   .7475191
 pred. P |    .778276  (at x-bar)
--------------------------------------------------------------------------------
(*) dF/dx is for discrete change of dummy variable from 0 to 1
    z and P>|z| correspond to the test of the underlying coefficient being 0

. dprobit emp married highschool somecollege college morecollege black white asian nchlt5 age
yr16 if female == 1, robust

Iteration 0:   log pseudolikelihood =   -1092372
Iteration 1:   log pseudolikelihood = -1034841.6
Iteration 2:   log pseudolikelihood = -1034640.5
Iteration 3:   log pseudolikelihood = -1034640.5

Probit regression, reporting marginal effects           Number of obs =1745342
                                                        Wald chi2(11) = 1.1e+05
                                                        Prob > chi2   = 0.0000
Log pseudolikelihood = -1034640.5                       Pseudo R2     = 0.0528

------------------------------------------------------------------------------
             |               Robust
         emp |      dF/dx   Std. Err.      z    P>|z|     x-bar  [    95% C.I.   ]
-------------+----------------------------------------------------------------
     married*|  -.0046299   .0007882    -5.87   0.000    .53956  -.006175 -.003085
highsc~l*|   .1736865   .0011801   138.23   0.000   .333406   .171374  .175999
someco~e*|   .2410333   .0010563   197.51   0.000   .267757   .238963  .243104
     college*|   .2898352   .0009015   244.96   0.000   .204103   .288068  .291602
moreco~e*|   .3058415   .0007105   256.66   0.000   .111537   .304449  .307234
       black*|   .0027258   .0016693     1.63   0.103   .110775  -.000546  .005998
       white*|   .0229931   .0013905    16.66   0.000   .754994   .020268  .025718
       asian*|  -.0490349   .0020772   -24.19   0.000   .060101  -.053106 -.044964
      nchlt5 |  -.0728054   .0007582   -96.03   0.000   .182918  -.074292 -.071319
         age |    .000253   .0000321     7.89   0.000    40.164    .00019  .000316
       yr16*|   .0121233   .0007146    16.96   0.000   .497585   .010723  .013524
-------------+----------------------------------------------------------------
      obs. P |   .6813095
     pred. P |   .6900532  (at x-bar)
--------------------------------------------------------------------------------
(*) dF/dx is for discrete change of dummy variable from 0 to 1
    z and P>|z| correspond to the test of the underlying coefficient being 0


. log close
      name:  <unnamed>
       log:  C:\Users\aso5400\Desktop\IPUMS hw.log
  log type:  text
 closed on:   6 Dec 2017, 18:22:56
```
