ECON 4848: Preliminary Analysis

Carter Herman, Ritik Sarraf, Sean Eichhorn, Jack Dratch
Economics Building CU Boulder ECON 4848: 256 UCB Boulder

Research Question: How does Marital Status affect Income?

Hypothesis: We predict that being married will be associated with an increase in income.

Data Summary: American Community Survey (ACS), U.S. Census Bureau, 2023

Descriptive Statistics:

Table 1: Descriptive Statistics from 2023 ACS (Continuous variables)

Table 1: Continuous Variables			
	Mean	Minimum	Maximum
Income (incwage) [in $]	63,953.82	4	870,000
Age (age) [in years]	34.155	1	96
Usual Hours Worked per Week (uhrswork) [in hours]	37.798	1	98
Number of Children (nchild)	0.524	0	9

The table 1 summary statistics of ACS 2023 data shows that the mean income for the people was about $63,953.82 for a household with minimum income of $4 and maximum of $870,000. The mean age distribution was 34.155 years and with minimum age of 1 year and maximum of 96 years included in the survey. The usual hours of work per week reflects the hours that each person on average work during the week was about 37.8 hours with a minimum of 1 hour and maximum of 98 hours. The mean number of children was 0.524 with minimum of 0 and maximum of 9.

[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder

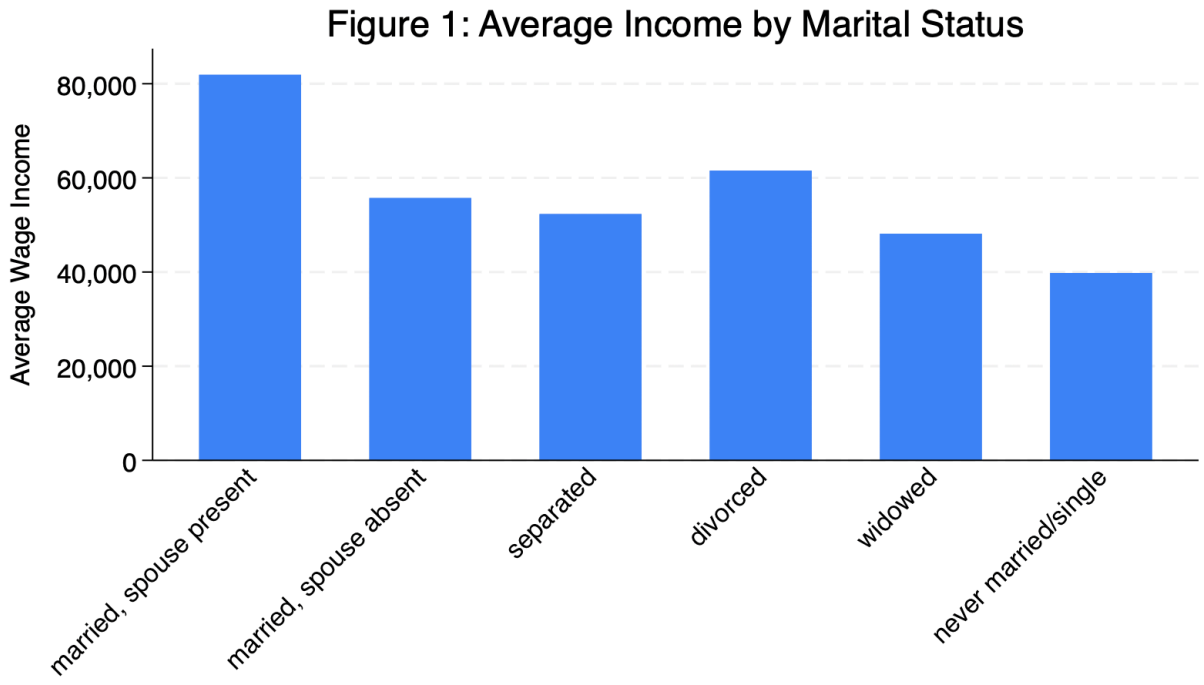
Table 2: Descriptive Statistics from 2023 ACS (Dummy variables)

Dummy Variables	
	Mean probability
Male	0.515
Female	0.485
Married	0.395
Separated	0.011
Divorced	0.074
Widowed	0.015
Never Married	0.505
Citizen	0.945
Not Citizen	0.055
Elementary Education	0.102
Middle School	0.076
Some High School	0.047
High School Graduate	0.239
Some College	0.167
College Graduate	0.294
Number of Observations (N)	2,216,199

The table 2 shows the dummy variables used during the research. This includes gender, marital status, citizenship status, level of education. These dummy variables show the correlation with the dataset and fulfill objectives during the analysis as part of the research. The total number of observations (N) represents the total surveyed population statistics in the dataset. For example, with male being excluded, how the number of children affects the income of the female population.

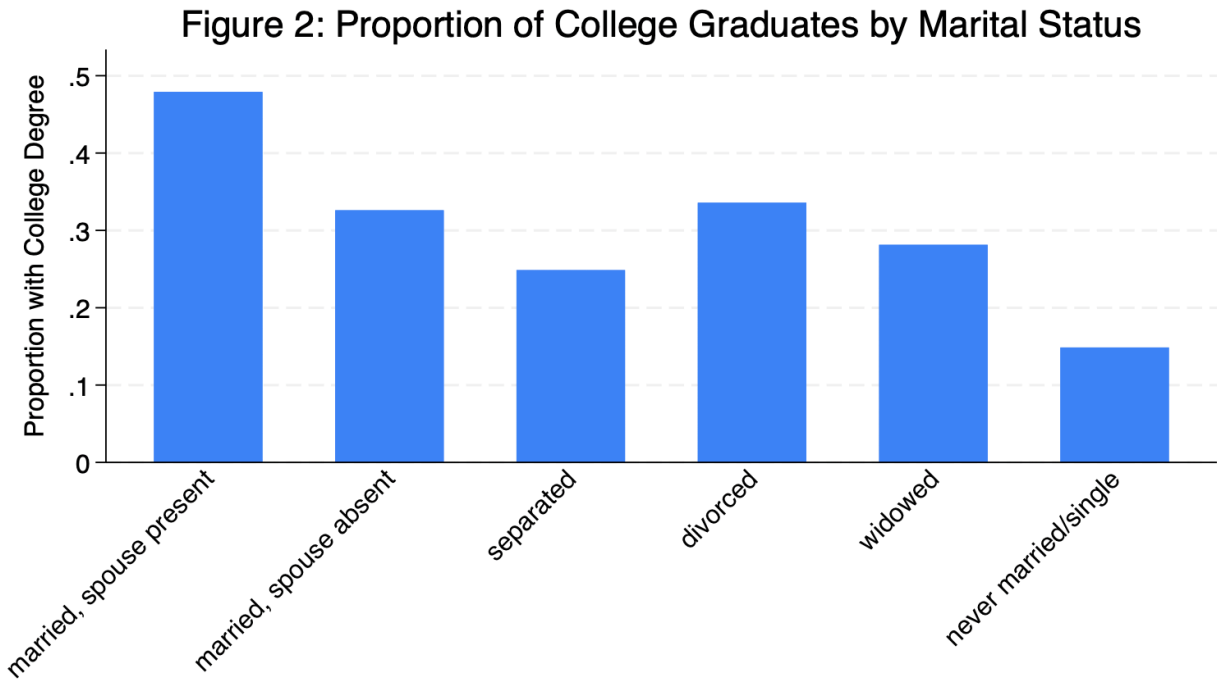
[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder

Illustrative Figures:



The figure 1 (bar plot) shows the married with spouse present were at the highest rank among earning average income above $80,000. Thereafter, it follows the bell-shaped pattern for the latter five categories where divorced couples tend to have higher on average income compared to the others (married with spouse absent, separated, divorced, widowed, and never married/single). Lastly, never married/single are among those with the least average income ($40,000).

[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder



The figure 2 (bar plot) shows the proportion of college graduates categorized by marital status. The married couples with spouse present are most likely to get a college degree with the highest proportion of ~0.48 compared to others. The married with spouse absent tends to have a similar proportion of college degrees compared to divorced couples. The latter of five different categories of marital status (married with spouse absent, separated, divorced, widowed, and never married/single) shows the similar pattern of bell-shaped curve distribution that matches similar to figure 1 and shows the correlation between education level (college degrees) and marital status. Lastly, never married/single are among those with the least proportion of college degree recipients with a proportion of 0.15.

[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder

Preliminary Regressions:

Table 1: OLS Regression for Log Wage Income - No Controls

Variable	Coefficient	P-Value
Married	0.909	0.00
Separated	0.457	0.00
Divorced	0.656	0.00
Widowed	0.246	0.00
Number of Observations		1,658,035
R^2		0.1032
Adjusted R^2		0.1032
Excluded Category = Never Married/Single		

The married couples show positive correlation with the log(incwage) as the coefficient is positive and > 0.8 shows stronger correlation. The widowed are among those with weakest correlation with the log(incwage) compared to others considering Never Married/Single being the excluded category.

Table 2: OLS Regression for Log Wage Income - With Control Variables

Variable	Coefficient	P-Value
Married	0.294	0.000
Separated	0.113	0.000
Divorced	0.182	0.000
Widowed	0.018	0.001
Age	0.009	0.000
Hours Worked per Week	0.052	0.000
Number of Children	0.066	0.000
Male	0.175	0.000
Citizen	0.009	0.000
Elementary Education	-0.057	0.001
Middle School	-0.062	0.000
Some High School	-0.035	0.000
High School Graduate	0.171	0.000

[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder

Some College	0.333	0.000
College Graduate	0.851	0.000
Number of Observations = 1,655,647		
R^2 = 0.477		
Adjusted R^2 = 0.477		

Excluded Categories: Never Married/Single, Female, Non-Citizen, No Schooling

On adding control variables, the correlation for the marital status changed for the log of income. It is reduced further down for all categories of marital status. The married couples still show positive correlation with the log(incwage) as the coefficient is positive and < 0.8 shows weaker correlation. The widowed are among those with weakest correlation with the log(incwage) compared to others marital status variables. Some level of education (Elementary Education, Middle School and Some High School) show negative correlation with the log of income as the coefficients are negative. High School Graduates, some college and college graduates shows positive correlation with the log of income. College graduates are among those with the highest strong positive correlation (coefficients > 0.8) considering the fact that Never Married/Single, Female, Non-Citizen, No Schooling are excluded from the category.

[1] Carter Herman, ECON 4848, CU Boulder
[2] Ritik Sarraf, ECON 4848, CU Boulder
[3] Sean Eichhorn, ECON 4848, CU Boulder
[4] Jack Dratch, ECON 4848, CU Boulder