



The Association Between Income, Binge Drinking Frequency and Parental Military Status



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Introduction

- In 2024, 178,000 Americans died from alcohol related causes. According to the CDC, this number has been increasing annually since 2016, with a 29% growth from 2016 to 2024 (Centers for Disease Control and Prevention [CDC], 2024)
- Household incomes over \$75,000 are positively associated with frequency of alcohol consumption (CDC, 2011).
- Military households on average earn more, but benefits are not incorporated into annual monetary earnings, meaning most enlistees earn much less.
- Children & siblings of US service members have higher rates of alcohol consumption than children & siblings with no familial association to the military (Williamson, et. al., 2018).
 - Associated with deployments, injuries and parental absences
- Adolescent children (10-12th grade) were the ages associated with the increased drinking
 - However, no study exists examining the relationship between *binge drinking* frequency in offspring of US service members
- Binge drinking is extremely dangerous, leading to AUD, and associated with alcohol related injuries and deaths, if a relationship were to be found it would have very important implications
- The unique relationship between alcohol consumption and a parents military status complicates the established relationship between income and binge drinking frequency in children.

Methods

Sample

- The sample consists of 3,908 non-institutionalized US citizens aged 12 and older pulled from the 2024 NSDUH survey who reported having or not having a parent in active military service (population of 70,241 completed interviews)

Measures

- Binge Drinking was defined as 5/4 or more drinks for men and women within an hour by the NSDUH survey and NIAA (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2024).
 - Respondents reported whether they had or had not binge drank in the past 30 days at the time of the survey
- Respondents annual income was measured as over or under the \$75,000 mark identified by the CDC (0 for \$74,999 or less, 1 for \$75,000 or more) through NSDUH
 - Calculated by collapsing the seven categories in Stata
- Age was measured through NSDUH survey responses, ranging between 11 groups (1=12-13, 2=14-15, 3=16-17, 4=18-20, 5=21-23, 6=24-25, 7=26-29, 8=30-34, 9=35-49, 10=50-64, 65+)
- Sex was measure by NSDUH responses (male or female) through NSDUH
- Bar graphs, ANOVA and regressions were performed using the observational data to test the hypothesis

Research Questions

- Is the military status of a person's parent associated with their binge drinking frequency?
- Does this relationship differ based on annual household Income?
- Does this relationship differ based on age?

Results

Bar Charts

- Visualizes a disparity in binge drinking instances, with offspring of civilian parents (Group 1) exhibiting a higher average frequency compared to offspring of military parents (Group 0)
- Annual income over \$75,000 shows slightly higher bar than under \$75,000
- visually much smaller than the military/civilian comparison
- Significance test needed

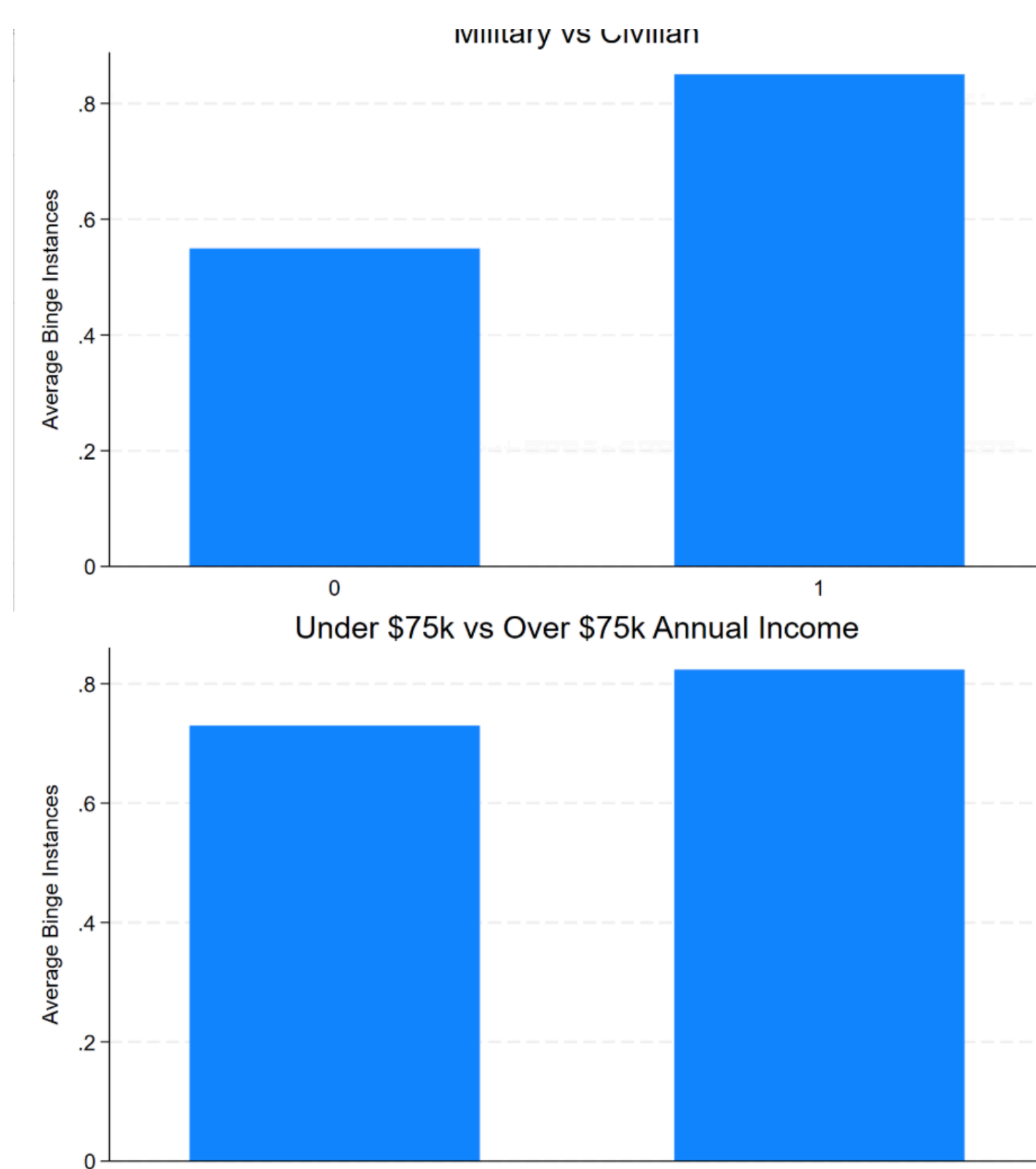


Figure 1. Univariate models for Income and parental military status

Summary of Bng30			
Mparent	Mean	Std. dev.	Freq.
0	.54929577	2.2435501	1,065
1	.85003579	2.9534014	2,794
Total	.76703809	2.7786664	3,859

Analysis of variance					
Source	SS	df	MS	F	Prob > F
Between groups	69.7402771	1	69.7402771	9.05	0.0026
Within groups	29717.827	3857	7.70490717		
Total	29787.5672	3858	7.72098684		

Analysis of variance					
Source	SS	df	MS	F	Prob > F
Between groups	8.1539651	1	8.1539651	1.06	0.3042
Within groups	29779.4133	3857	7.72098684		
Total	29787.5672	3858	7.72098684		

Bartlett's equal-variances test: $\chi^2(1) = 17.1472$ Prob>chi2 = 0.000
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Figure 2. ANOVA test between binges and parental status (top) and income (bottom)

Discussion

- These findings show military offspring had significantly fewer binge drinking episodes (0.55) than civilian offspring (0.85).
- The findings for 16-17 were strong but insignificant, and generally the regression shows that adolescence is not significantly related to bingeing holding other variables constant.
- Civilian research often shows a positive correlation between higher income and drinking, this study showed no significant difference ($p = 0.304$) between those earning above or below \$75k
- Ultimately, the prediction that lower-income military families would report higher binge drinking due to environmental stressors was not supported by the mean frequency data.
- Although average drinking was similar across income levels, Bartlett's test ($p < 0.001$) indicates income doesn't change the how many people binge, but how unpredictable/varied the bingeing is between groups
- Future studies could examine deployment number of parents

Bivariate (figure 2)

- Offspring of civilian parents engaged in significantly more binge drinking episodes than offspring of military parents ($F=9.05$, $p=0.0026$)
- Household income did not have a significant impact on binge drinking frequency
- $F= 1.06$, $p = .304$.

Multivariate (holding sex, income, parent and age constant at each level)

- Initial regression found income and civilian parenthood to be positively associated with binge drinking
- Holding age constant, income and binge drinking are no longer moderated by milt. parental status, as shown by the regression table and parallel trends in the predictive margins graph.
- Binge drinking increases significantly starting at age 18, peaking specifically between ages 21–23 and 30–34 ($P < 0.001$) for civilians, but not for young children.
- Sex is a significant predictor ($P = 0.002$), with one females drinking significantly less, while income and military status alone are not significant.

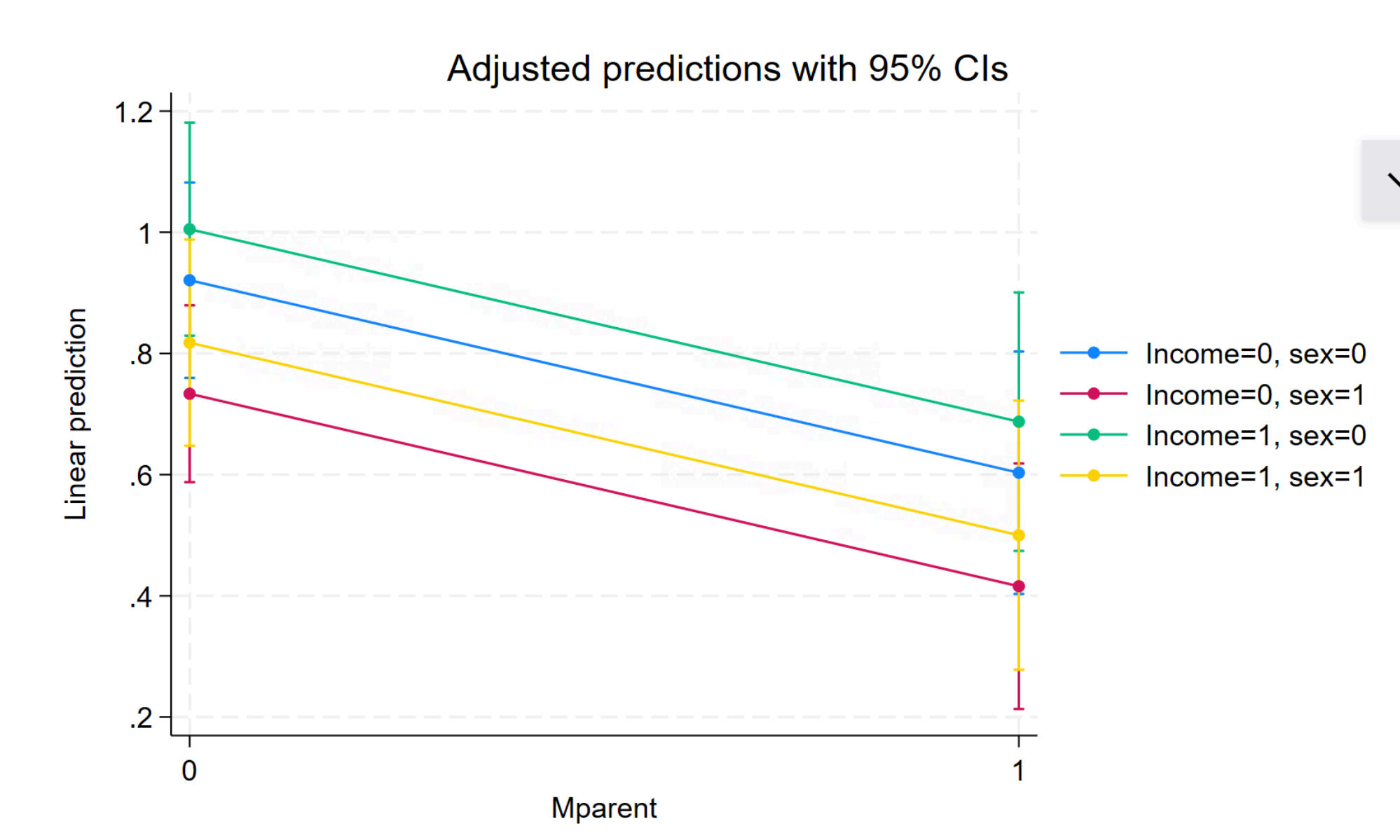
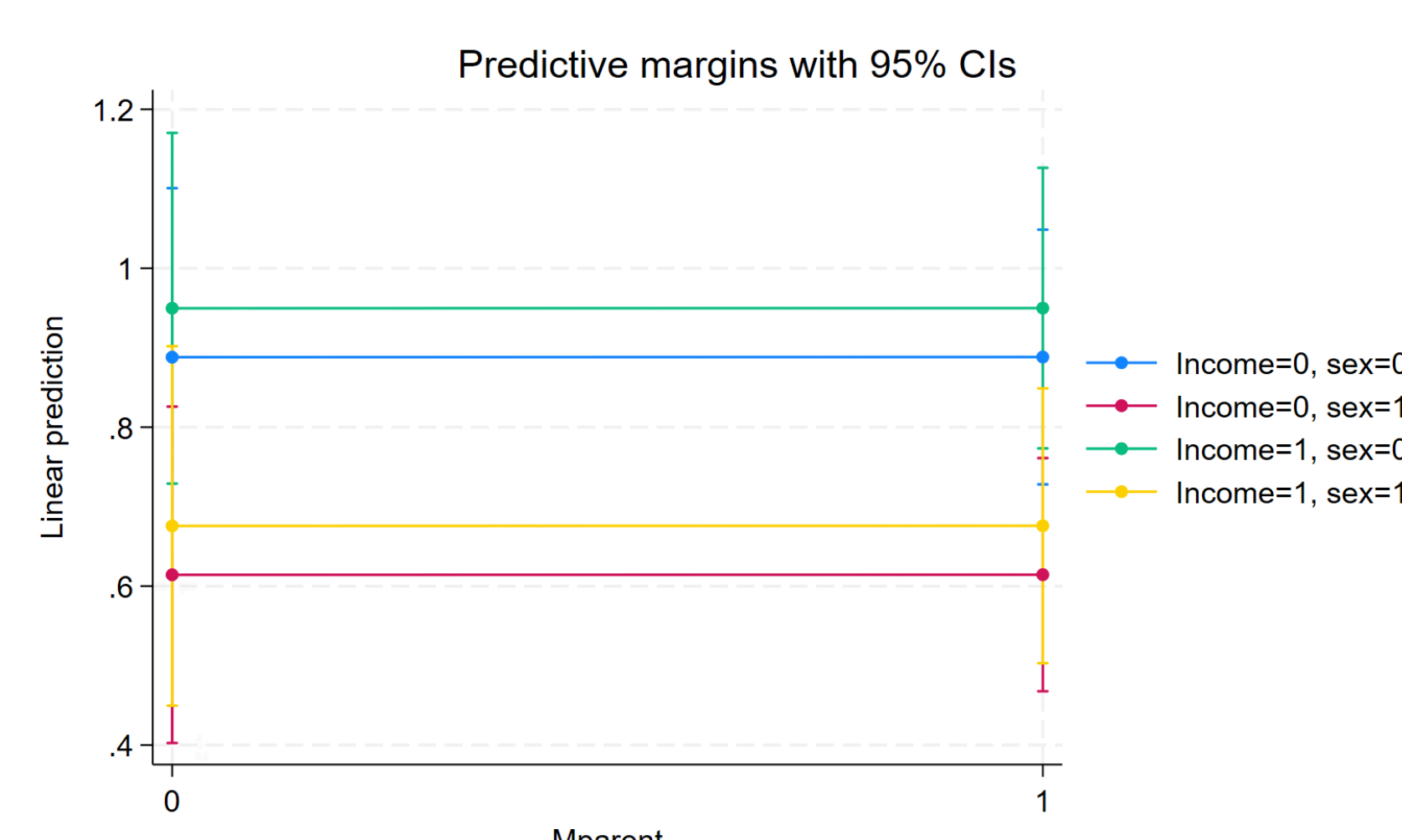


Figure 3. Regressions with 3rd variable



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