

PS 12

Mengyang Davila

May 2, 2023

Question 6

The missing rate for the variable *logwage* is 31 percent. I believe that this variable is missing not at random, as it may be missing specifically from individuals who are still in school.

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
logwage	1546	31	1.7	0.7	-1.0	1.7	4.2
hgc	14	0	12.5	2.4	5.0	12.0	18.0
exper	1932	0	6.4	4.9	0.0	6.0	25.0
kids	2	0	0.4	0.5	0.0	0.0	1.0

Question 7

Using Heckman selection gives the most accurate estimate of $\hat{\beta}_1 = 0.091$, compared to alternative methods such as listwise deletion or replacing missing values with the sample mean. This method allows for the inclusion of observations with missing data, thereby improving the sample size and statistical power of the analysis.

	Listwise deletion	Fill mean	Heckit
(Intercept)	0.834*** (0.113)	1.149*** (0.078)	0.446*** 20.553*** (0.122) (1.111)
hgc	0.059*** (0.009)	0.036*** (0.006)	-1.104*** 0.091*** (0.010) (0.066)
union1	0.222* (0.087)	0.068 (0.047)	-1.113*** 0.186* (0.084) (0.213)
college1	-0.065 (0.106)	-0.126** (0.048)	-0.565* 0.092 (0.100) (0.227)
exper	0.050*** (0.013)	0.021** (0.007)	-0.506*** 0.054*** (0.012) (0.030)
exper ²	-0.004** (0.001)	-0.001** (0.000)	-0.002+ (0.001)
married1			-2.275*** (0.162)
kids			0.495*** (0.114)
invMillsRatio			-0.695*** (0.060)
sigma			0.696
rho			-0.998
Num.Obs.	1545	2229	2229
R2	0.038	0.020	0.092
R2 Adj.	0.035	0.018	0.088
AIC	3182.4	3808.4	
BIC	3219.8	3848.4	
Log.Lik.	-1584.189	-1897.193	
F	12.106	9.207	
RMSE	0.67	0.57	0.66

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Question 9

The average of each set of predicted probabilities is 0.0096, which, in my opinion, appears realistic. This could be attributed to the fact that union jobs tend to provide better pay and benefits, which can be especially appealing to women who are the primary breadwinners for their families. Additionally, union jobs may offer more predictable and stable work schedules, which can be significant for women who are juggling family responsibilities.