Problem Set 7

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.]560 logwages were missing. I think the logwage variable is MCAR. The listwise deletion of Beta one varies quite differenly from the other three models. The predicitive model is the same to the mean imputation but it is very dependent on the inputted values of x–which I used the mean values of each column for the values of x. The mean imputation I would think would be the most accurate because it is a large dataset so the values will tend toward the expected value. I got a Beta one of .059 from mice. I am still confused on the theoretical part of multiple imputations, so I can't expand any further on that. I was not able to include the multiple imputations as apart of the combined modelsummary because I was having issues with my R code, but the modelsummary for just the mice can be seen after running my R code.

.]I am still working on finding the best data to do what I would like. I would like to create some predictive model or gradient-based optimization model on some sort of financial/economic data. Objective functions that intrigue me to optimize would be risk, solvency, profit, or something of the like.

	logwage	hgc	college	tenure	age	married
X	Min. :0.0049	Min. : 0.0	Length:2229	Min. : 0.000	Min. :34.00	Length:2229
X.1	1st Qu.:1.3623	1st Qu.:12.0	Class :character	1st Qu.: 1.583	1st Qu.:36.00	Class :charact
X.2	Median :1.6551	Median :12.0	Mode :character	Median : 3.750	Median :39.00	Mode :charac
X.3	Mean :1.6252	Mean :13.1		Mean : 5.971	Mean :39.15	
X.4	3rd Qu.:1.9362	3rd Qu.:15.0		3rd Qu.: 9.333	3rd Qu.:42.00	
X.5	Max. :2.2615	Max. :18.0		Max. :25.917	Max. :46.00	
X.6	NA's :560					

	MCARlm	MeanImputelm	PredictedValuelm
(Intercept)	0.627	0.808	0.826
	(0.109)	(0.087)	(0.088)
hgc	0.062	0.049	0.046
	(0.005)	(0.004)	(0.004)
collegenot college grad	0.146	0.160	0.168
	(0.035)	(0.026)	(0.026)
tenure	0.023	0.015	0.014
	(0.002)	(0.001)	(0.001)
$I(age^2)$	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
marriedsingle	-0.024	-0.029	-0.032
	(0.018)	(0.014)	(0.014)
Num.Obs.	1,669	2,229	2,229
R^2	0.195	0.132	0.112
R^2 Adj.	0.192	0.130	0.110
AIC	1,206.1	1,129.3	1,195.5
BIC	1,244.0	1,169.2	1,235.4
Log.Lik.	-596.041	-557.636	-590.727
F	80.512	67.504	55.926
RMSE	0.35	0.31	0.32

Table 1: Comparative Model Summaries