

# POLSCI 733: MLE Midterm Exam

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## 1 Discussion

Table 1 includes the original model's estimates, standard error, t statistics, p value, and confidence intervals. Among these elements, I compare Table 1's estimates with that of other tables. Regarding estimates in the model, the coefficients of intercept, ethnic fractionalization, and democracy score in the original model are -0.220, 2.010, -0.096, respectively. These values, however, are distorted in Table 2 in which missing values are omitted. In Table 2, the coefficients of intercept, ethnic fractionalization, and democracy score are 0.669, 0.805, and -0.165, respectively. As seen in these results, we can conclude that missing values do distort the regression outcome of the model.

The problems of missingness are prevalent in social science research. In alleviating the biased results, many researchers use Amelia, which has been well-known as a useful way for imputing missingness. The ols outcome with data imputed by Amelia is indicated in Table 3. However, the result is disappointing. As seen in Table 3, the coefficients of intercept, ethnic fractionalization, and democracy score are 1.938, 0.334, and -0.287, respectively. These values are more distant from those of the original model than from those of the model with missingness. Thus, the empirical results in this article offer little supports on the primacy of Amelia in the correction of the model with missing data.

## 2 Tables

Table 1: Table of Original Model

	Estimate	Std. Error	T-Statistic	P-Value	Lower 95% CI	Upper 95% CI
(Intercept)	-0.220	0.854	-0.258	0.798	-1.893	1.453
Ethnic fractionalization	2.010	0.631	3.184	0.003	0.773	3.248
Democracy score	-0.096	0.080	-1.204	0.235	-0.252	0.060

Table 2: Table of Model with Missing Values

	Estimate	Std. Error	T-Statistic	P-Value	Lower 95% CI	Upper 95% CI
(Intercept)	0.669	0.569	1.175	0.247	-0.447	1.785
Ethnic fractionalization	0.805	0.444	1.816	0.078	-0.064	1.675
Democracy score	-0.165	0.052	-3.157	0.003	-0.267	-0.062

Table 3: Table of Model with Imputation

	Estimate	Std. Error	T-Statistic	P-Value	Lower 95% CI	Upper 95% CI
(Intercept)	1.938	0.460	4.215	0.0001	1.037	2.839
Ethnic fractionalization	0.334	0.452	0.739	0.464	-0.552	1.220
Democracy score	-0.287	0.038	-7.493	0	-0.362	-0.212