EC402 classes

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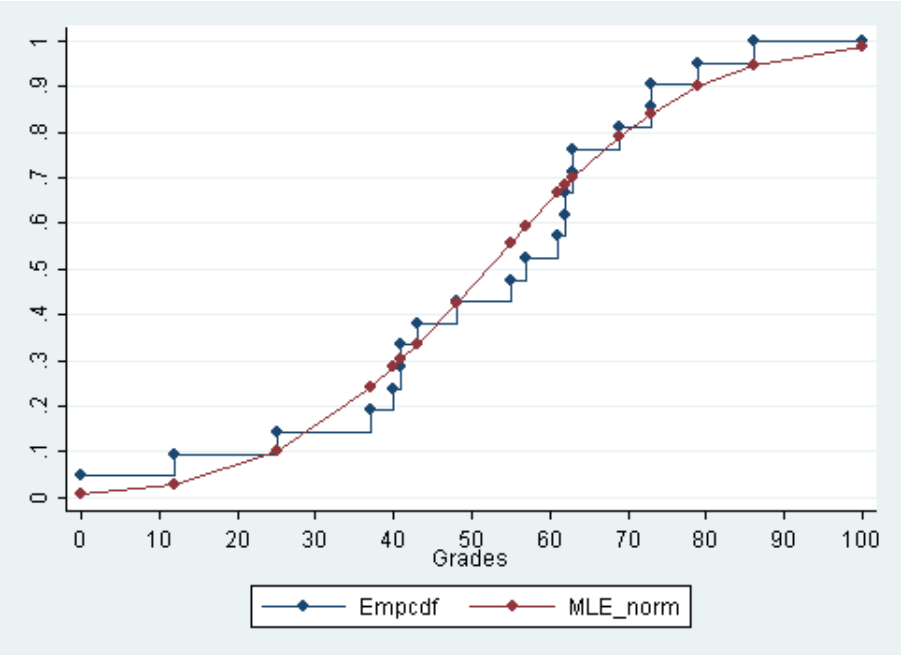
Mock exam raw grades for groups 3 & 4

Percentiles	Grades	Statistic	Grades
10%	25	Mean	51.90476
25%	41	Std. Dev.	21.62615
50%	57	Variance	467.6905
75%	63	Skewness	-0.72038
90%	73	Kurtosis	3.084854
Obs	21	Obs	21

Figure 1: Empirical CDF and Normal MLE



Mock exam main mistakes

General comments

- Write clearly your answers. Try to emphasize the key points of your answers.
- Answer the questions. Being able to reproduce the proofs of the lecture notes is important, but showing that $\hat{\beta}_{igls}$ is unbiased when the question asks if you can calculate this estimator is useless and time consuming.
- Do not worry too much about the order of the questions and always attempt the next question even if you think that the answer depends on the previous one. For example, even if you were not too sure about the $IGLS$ estimator, there was still a lot of points on the last question on prediction which was based on a previous problem set.
- When you write a proof, try to be specific, state the assumptions that you are using and why they are useful. For example, state at each line why you can do this particular step. Writing $a = b = c = d$ so $a = d$ will not give you a lot of marks.
- Always state the definition that you are using. For example, in this mock exam, many people write sometimes Ω as the matrix defined in the mock and sometimes *switch* their notations to $\Omega = c^2.\Omega$ the conditional variance of the disturbance term (as in the lecture notes). This gave rise to numerous mistakes and very unclear statements.
- There was a lot of mistakes in matrix algebra, mostly because people did not check that the matrices had the right dimensions. At the end of a proof, it is good practice to check that you did not conclude that a matrix is equal to a scalar or a vector.
- It is important to check if X is stochastic of fixed. Here, we assume A3RMI: $E(\varepsilon|X) = 0$ and A5N: $\varepsilon|X \sim N(0, c^2.\Omega)$, so you have to take into account in your statements that X is stochastic!

Specific comments by question

1. State that you need only A1 to compute $\hat{\beta}_{ols}$. To compute $\hat{\beta}_{igls}$ you need Ω invertible and $X'\Omega^{-1}X$ invertible these facts needed to be checked.
2. Here to compute $\hat{\beta}_{igls}$ using OLS you needed to compute $X^* = \Omega^{-1/2}X$, this computation is not trivial. When can $\Omega^{-1/2}$ be computed? Does it have a specific form in our framework?
3. Two common mistakes were to write implicitly that $tr(A.B.C) = tr(B.A.C)$ and $tr(A.B) = tr(A).tr(B)$.
4. Many people forgot to check that before worrying if the ses of an estimator are large or small, it is important to check if this estimator is unbiased. A tricky part of this question was how to find the distribution to define a confidence interval for the predictions.