EC220-PS4

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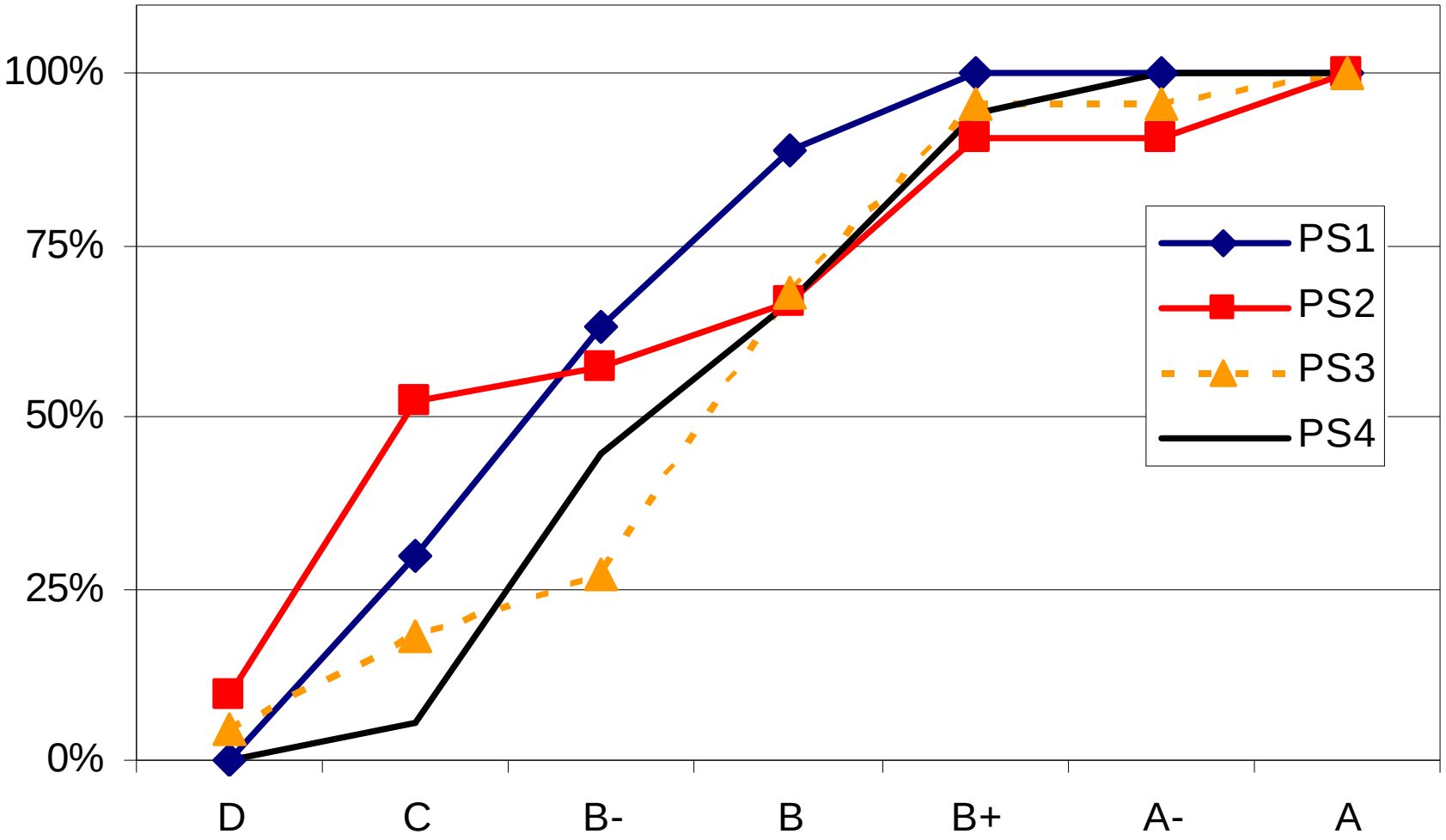
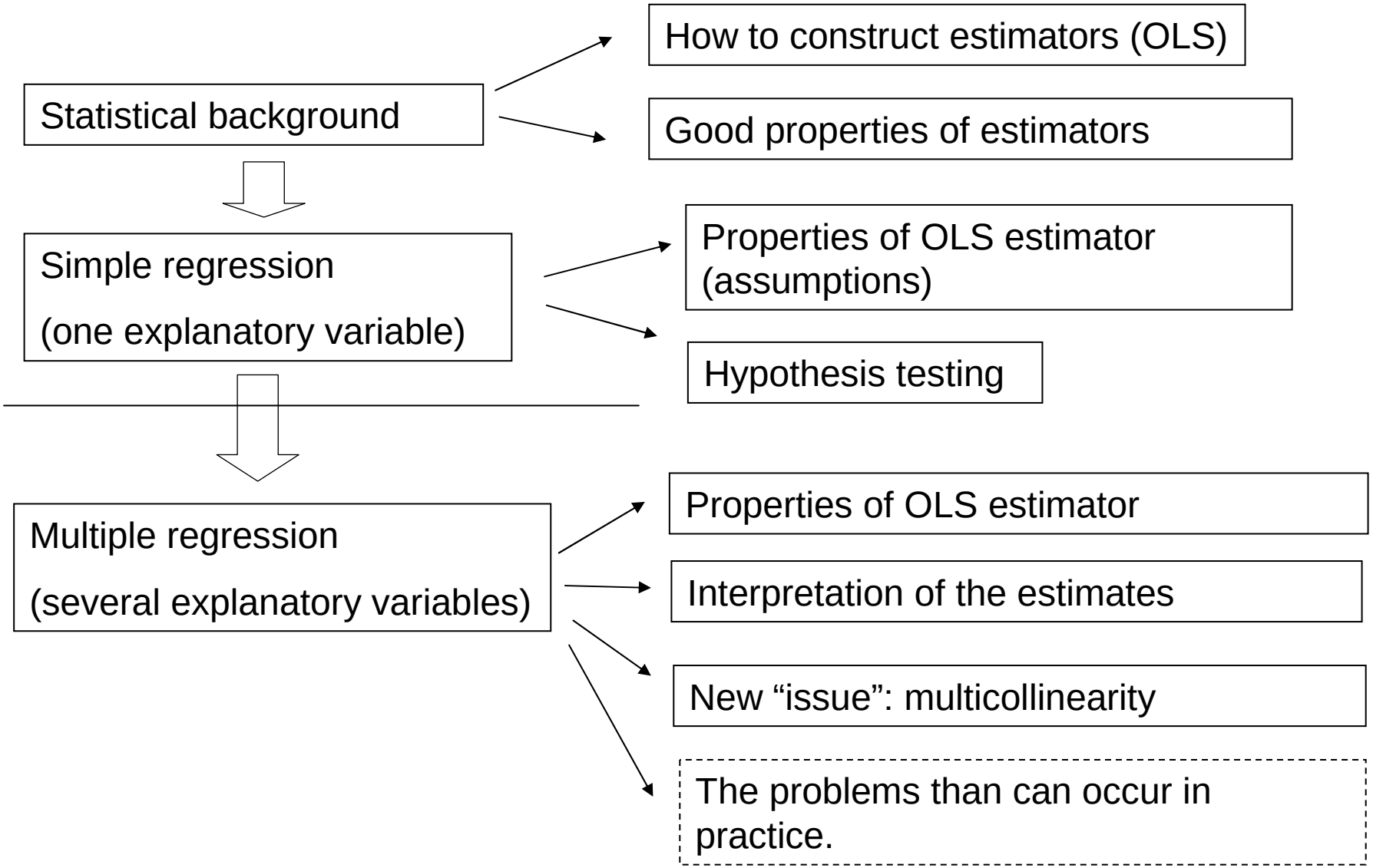
Office hour: on Monday in S684
from 16:30 to 17:30

PS4 grades



Big picture


Statistical background
How to construct estimators (OLS)
Good properties of estimators
Simple regression
(one explanatory variable)
Properties of OLS estimator (assumptions)
Hypothesis testing
Multiple regression
(several explanatory variables)
Properties of OLS estimator
Interpretation of the estimates
New “issue”: multicollinearity
The problems than can occur in practice.

Main mistakes for 3.2

- Interpretation of the multiple regressions' estimates "holding the other explanatory variables constant" (here SM, SF, ASVABC)
- Do not state your conclusion: does SM, SF matter? Is SM more important than SF?
- You are supposed to use the t-tests to prove that SM/SF matters (one sided?).
- We will see later how to show if beta(SM) is or not larger than beta(SF).
- In the last regression, SF and SM correlated. Issue of collinearity. This is a concern but not a major concern as we are interested in comparing the estimates of SM and SF.

Main learning outcomes from 3.8

- Be able to state which factors are really important (su)
- Be able to state what is the meaning of su (it is 1/(n-k)*RSS) so in this case (n-k are the same) it is the difference in the quality of fit of the model for the two populations.
- Be able to give an intuitive explanation why se(bk) is lower when MSD(Xk) increases.
- Rk. The formula is only valid when we have 2 explanatory variables but the intuition remain the same when this number is >2.

Main mistakes for 3.11

- Do not state the main issue (multicollinearity). Should use “key words” during the exam.
- When looking at regression results the main outcomes of interests are:
  - **1) estimates**
  - 2) standard-errors
- Multicollinearity is a tricky question. In general this is not a major concern but if the correlation is very high this may be the case.
- Impact on the estimators:
  - Are they biased? (No)
  - Are their s.e.s wrongly estimated? (No)

Main mistakes for 3.15

This is a very simple exercise and you should all be able to do it perfectly.

Crimes

- Do not state Ho/H1
- Do not state the significance level, do not used the correct one (0.1% if possible)
- Do not give a conclusion in words.
- Do not state the dfs used to compute F-crit.

How to write it?

- First state your model and the relative Ho/H1
- Give the book formula for the F-test.
- Perform the computations: RSS, dfs...