

ECMT 461
INTRODUCTION TO
ECONOMIC DATA
ANALYSIS

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Lecture 13

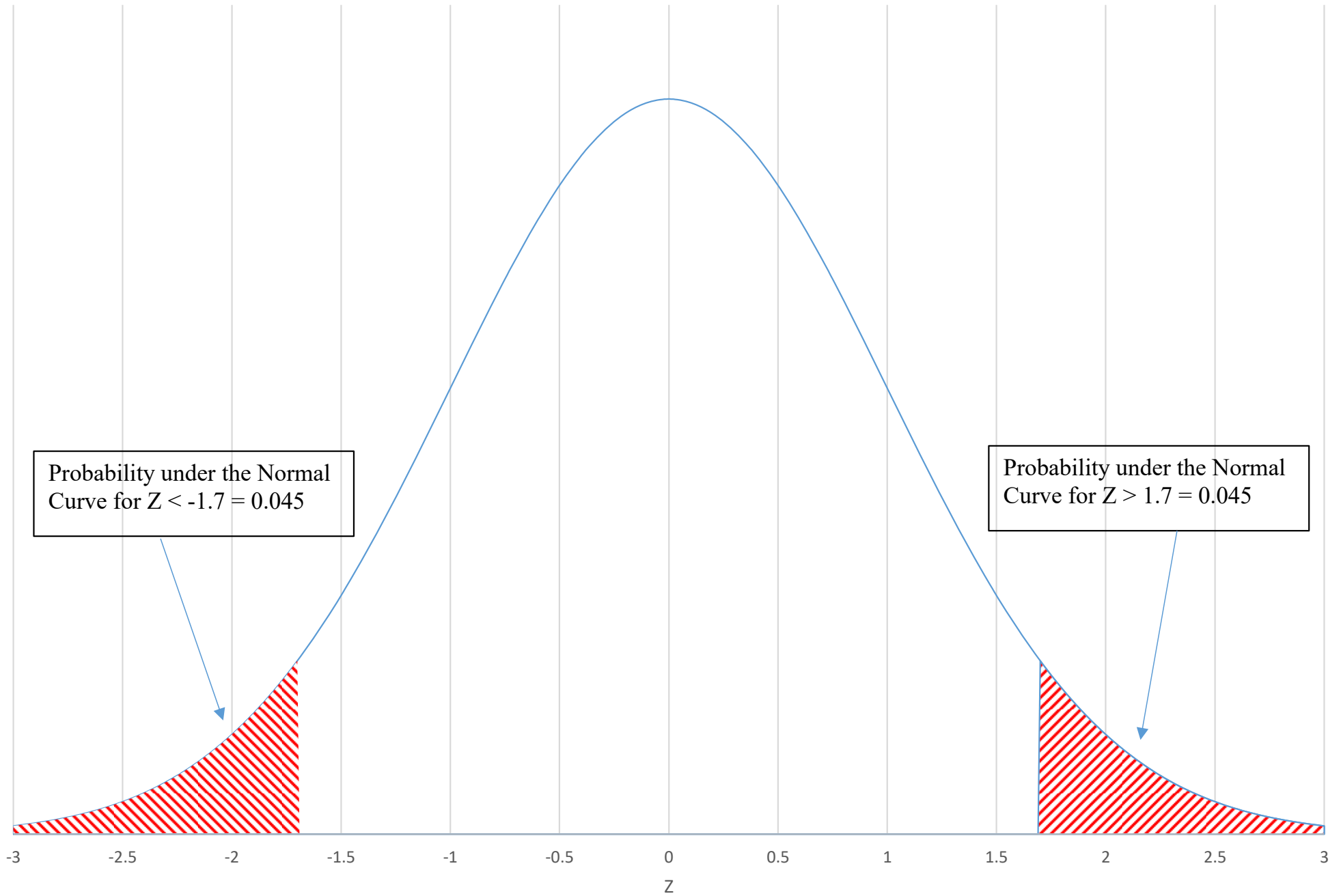
AGENDA

- P-Values
- Term Project Examples
 - Descriptive Statistics
 - Frequency Distributions
 - Single Sample Confidence Intervals
 - Single Sample Hypothesis Tests

P-VALUES

- For a given *calculated test statistic*, the P-Value is the probability in the “tails” of the appropriate probability distribution
- Hypothesis Testing Decision Rules
 - Reject H_0 if the P-Value $<$ the significance level α
 - Fail to Reject H_0 if the P-Value $>$ the significance level α
- For Two-Tailed alternative hypotheses
 - P-Value is TWO TIMES the probability in the Upper or Lower tail
- For One-Tailed alternative hypotheses
 - P-Value is the probability in the tail

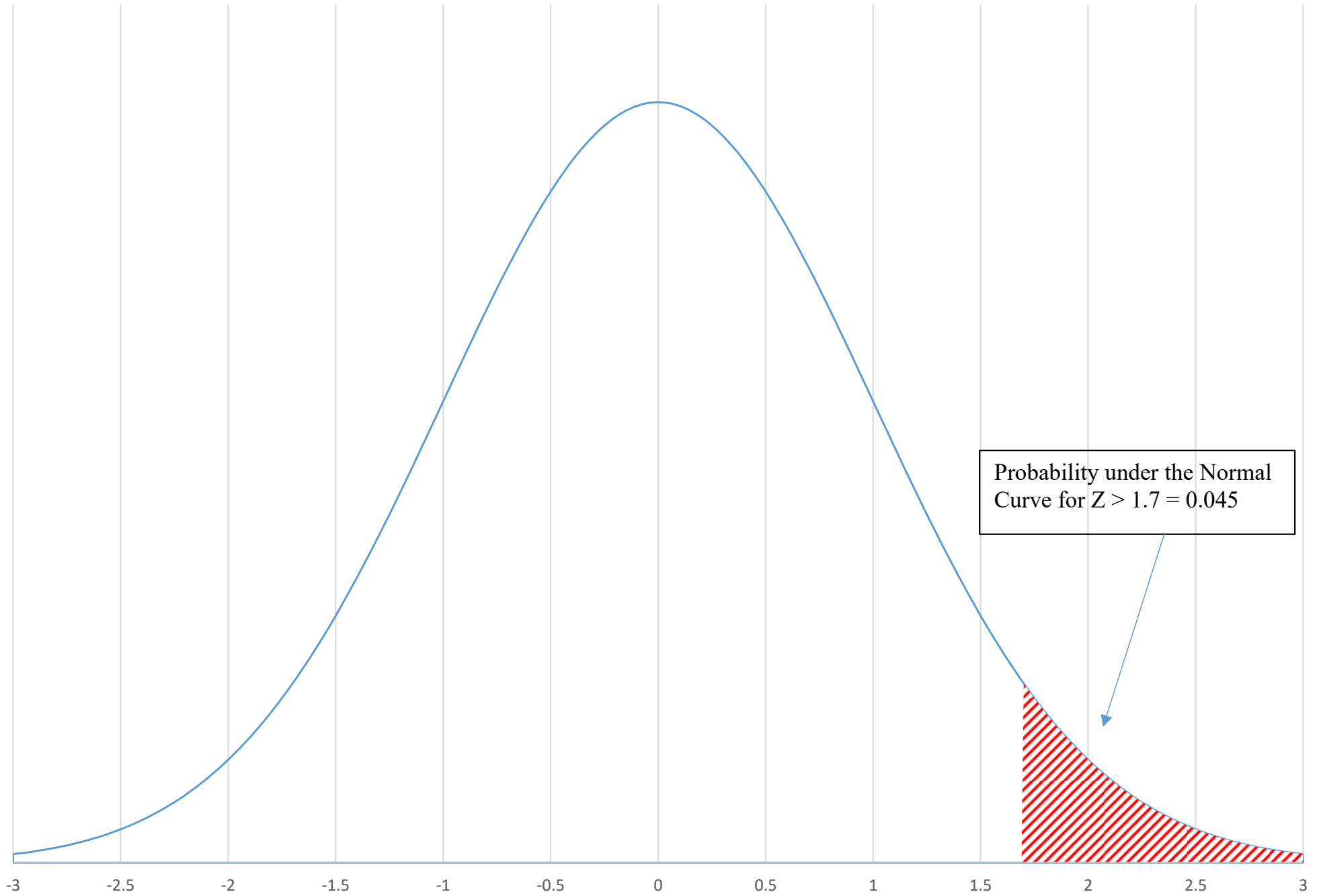
Standard Normal Probability Plot



Probability under the Normal Curve for $Z < -1.7 = 0.045$

Probability under the Normal Curve for $Z > 1.7 = 0.045$

Standard Normal Probability Plot



TERM PROJECT EXAMPLES

SETTING UP YOUR DATA

- Combine your data into a single workbook
- On a single worksheet, I suggest you have your Criterion Variable, Predictor Variable, and a variable to identify subgroups
- Check for missing values or “non-matches” and eliminate these from your “analysis” dataset
- Combining data from different datasets – the XLOOKUP function
- You will want to set up your data in different ways for different tasks: Sections 3-4, Sections 5-6, Section 7

EXCEL “ARRAY” FUNCTIONS

- Allow you to include conditional IF statements in a wide array of standard functions to make your coding more efficient

| Group | Sample Size | Minimum | Mean | Median | Max |
|---------|-------------|---------|------------------------------------|--------|------|
| Overall | 3195 | 12.176 | 27.275 | 27.332 | 45.8 |
| A | 710 | 14.703 | 28.157 | 28.069 | 45.8 |
| B | 732 | 14.427 | =AVERAGE(IF(\$A:\$A=\$F7,\$B:\$B)) | | |
| C | 1007 | 12.088 | 26.026 | 26.027 | 41.0 |