

ECN 102: Analysis of Economics Data

Midterm Practice

Remy Beauregard

Practice exercises come from *Analysis of Economics Data* (2022) by Colin Cameron. Exercises appear at the end of each chapter. Answers to odd exercises appear at the end of the textbook. Answers to even exercises appear below. These questions have been selected to help prepare you for the midterm.

Chapter 1:

- Q2
- Q3

Chapter 2:

- Q2
- Q9
- Q12

Chapter 3:

- Q3
- Q5

Chapter 4:

- Q9
- Q10

Chapter 5:

- Q9 (not part *c*)
- Q10 (not part *c*)

Chapter 6:

- Q1
- Q10

Chapter 7:

- Q5
- Q13

Even Question Answers

Chapter 1

- Q2:
 - a) Numerical, cross-section
 - b) Categorical (y/n), time series
 - c) Numerical, cross-section
 - d) Numerical, time series
 - e) Numerical, panel

Chapter 2

- Q2:
 - a) $\sum_{i=1}^6 2 = 2 \times 6 = 12$
 - b) $\sum_{i=1}^4 \frac{2}{i} = \frac{2}{1} + \frac{2}{2} + \frac{2}{3} + \frac{2}{4} = 2 + 1 + 0.5 + 0.\overline{66} = 4.1\overline{66}$
 - c) $\sum_{i=1}^3 3i^3 = 3 + (3 \times 2^3) + (3 \times 3^3) = 108$
 - d) $\sum_{i=4}^6 i = 4 + 5 + 6 = 15$
 - e) $\sum_{i=1}^4 (5 + 2i) = 5 \times 4 + 2(1) + 2(2) + 2(3) + 2(4) = 40$
- Q12:
 - a) Positive skew
 - b) Positive skew
 - c) Not enough information
 - d) Positive skew

Chapter 4

- Q10:
$$80 \pm \frac{60}{\sqrt{100}} \times t_{100-1, 0.025}^*$$

```
di invttail(99,0.025)
```

1.984217

$$80 \pm \frac{60}{\sqrt{100}} \times 1.98 = (68.12, 91.88)$$

Chapter 5

- Q10:

a) $r_{xy} = \frac{Cov(x,y)}{s_x s_y} = \frac{40}{\sqrt{400} \times \sqrt{16}} = 0.5$

b) $b_2 = \frac{Cov(x,y)}{Var(x)} = \frac{40}{400} = 0.1$

c) $s_x, s_y = 1 \rightarrow b_2 = r_{xy} \frac{s_y}{s_x} = r_{xy} \times 1 \rightarrow b_2^{standardized} = 0.5$

Chapter 6

- Q10:

a) True; definition of standardizing a r.v.

b) False; not true for all sample sizes

c) True; CLT for large enough sample sizes