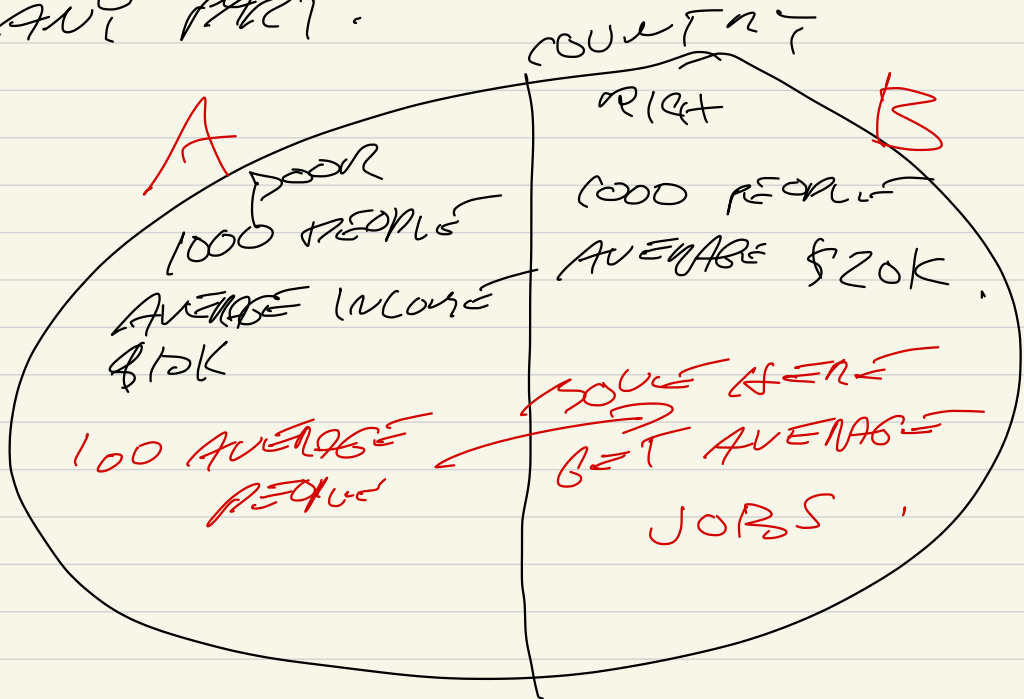


PROB (25) R4/14/22

PARADOXES

INCOME IN A WHOLE COUNTRY CAN RISE FASTER THAN INCOME IN ANY PART.



$$\text{TOTAL INCOME} = 1000 \times 10000 + 1000 \times 20000 = 30M$$

$$\text{PER CAP} = \frac{30M}{2000} = \$15K / \text{PERSON}$$

SECT A'S AVERAGE INCOME
STAYS SAME.

ORIG 1000 @ \$10K

NOW 900 @ \$10K

SECT B DITTO

ORIG 1000 @ \$20K

NOW 1100 @ \$20K.

LOOK AT WHOLE COUNTRY

ORIG PER CAP \$15K

$$\text{NOW} \quad \frac{900 \times \$10K + 1100 \times \$20K}{2000}$$

$$= \frac{9000000 + 22000000}{2000}$$

$$= \frac{31M}{2K}$$

$$= 15,500$$

$$\frac{30000}{2}$$

UP FROM

10,000

COLLEGE ACCEPTANCE RATE SURPRISE

2 GROUPS APPLYING TO COLLEGE

A: ALBANY

B: BOSTON

SEVERAL MAJORS: ENGIN

HUMAN

LOOK AT PROB OF A PERSON BEING ACCEPTED.

INTO ENB: A BOSTONIAN HAS A LARGER CHANCE THAN ALBANYAN

$$\frac{4}{5} \text{ VS } \frac{11}{15} \quad \frac{\text{ACCEPTED}}{\text{APPLIED}}$$

INTO HUMAN: DITTO

$$\frac{7}{15} \text{ VS } \frac{2}{5}$$

AMALGAMATE THEM

TOTAL ACB APPS:

$$\frac{11}{15} \quad \frac{2}{5} \rightarrow \frac{13}{20}$$

BOSTON APPS. $\frac{4}{5} \quad \frac{7}{15} \rightarrow \frac{11}{20}$

IN TOTAL, AN ALBANIAN HAS A BETTER CHANCE.

BUT IN ENG, ALBANIAN WORSE CHANCE

IN HUMA

HYPOTHESIS TESTING

ES DOES A NEW DRUG WORK?

I.E. WORK MORE OFTEN THAN NOT
WORLDWIDE PHARMA $\$10^{12}$ / YR.

US: $\$5 \times 10^{11}$ / YR.

DEVELOPING ONE SUCCESSFUL

NEW DRUG $\$1-5 \times 10^9$

(INCLUDING COST OF FAILURES)

WE WATCHED 3 RADKE
VIDEOS