

Q1

- a] $P(X_2=0)=1/4$, $P(X_2=2)=3/4$
- b] 1.5
- c] $1/2$
- d] 0
- e] 1

Q2

- a] Yes. See book.
- b] $1/8 \sigma^2_Y$
- c] \tilde{Y}
- d] It's biased and inconsistent
- e] μ_Y is unknown

Q3

- a] $\beta_0 + \beta_1 X_i$, $\hat{\beta}_0 + \hat{\beta}_1 X_i$
- b] “No omitted variables”, or “Other factors are not correlated with X_i ”
- c] Book
- d] No. Yes. Yes. Yes.

Q4

- a] Repeated-100 times in lecture! Include “in expectation” or “ceteris paribus”
- b] Unit-free
- c] $696.7 + 9.6 \cdot 30$. Age=99 is out of sample, so “No”. 99-year-olds are likely different from the individuals in the sample.
- d] $696.7 + 9.6 \cdot 41.6$
- e] $9.6 \pm 1.96 \cdot 1.2$
- f] Smaller. Look at $t = 9.6/1.2 = 8$. Rejects H_0 . So the p must be smaller.

Q5

- a] Expected wage difference is 44%. Women earn, c.p. 44% less than men.
- b] Yes: because of a]. Or: No: omitted variables.
- c] If MarketValue goes up by 1%, then we expect, c.p., Earnings to go up by 0.37%.
- d] In the first regression, variables were omitted that were correlated with *Female*.

Q6

See book.

Q7

- a] Yes. For each state, we have a measurement for each year, as $336 = 48 \cdot 7$.
- b] + c] Repeated 1000 times in the lecture.
- d] No: the fixed effects results are very different. The FE controls for omitted variables (α_i). So the first regression suffers from omitted variables, so Assumption #1 does not hold.

Q8

- a] Multicollinearity
- b] No, it is **always** lower, see book.
- c] $0.00734 < 0.01$.