


## Section 4e: Practice Problems: John McGready



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### Using Stata: Arm Circumference and Height

1. Recall the regression relating arm circumference to height for the random sample of 150 Nepali children less than 12 months old

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. regress armcirc height
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Source	SS	df	MS	Number of obs
Model	148.874597	1	148.874597	150
Residual	177.263335	148	1.19772523	
Total	326.137932	149	2.18884518	

F( 1, 148)	=	124.30
Prob > F	=	0.0000
R-squared	=	0.4565
Adj R-squared	=	0.4529
Root MSE	=	1.0944

armcirc	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
height	-.1579469	.0141671	11.15	0.000	-.1299511 - .1859428
_cons	2.695906	.8774225	3.07	0.003	.9620116 4.4298

– Suppose arm circumference had been reported in inches instead of centimeters, but height was still recorded in centimeters

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### Example: Arm Circumference and Sex

a) Can you determine what the resulting slope estimate for height would be with this different reporting schema?

b) What would the  $R^2$  value be with this different reporting schema?

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### Example: Arm Circumference and Sex

2. Recall the regression relating arm circumference to child's sex for the random sample of 150 Nepali children less than 12 months old

$$\hat{y} = 12.5 + -0.13x$$

- $R^2$  for this analysis was 0.002 or 0.2%
  - In this example,  $x$  is the binary variable for sex, coded as a 1 for female children, and 0 for male children. Suppose  $x$  was coded as 1 for male children and 0 for female children.

a) What would the estimate of  $R^2$  be?

b) What would the estimate of  $r$  be?

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