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1 . use "/Users/xingchenye/Documents/FALL2016/513/Assignment2/hw1 12.dta"
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2 . regress llearningswk educyears
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Source	SS	df	MS	Number of obs = 935		
Model	20.0734039	1	20.0734039	F(1, 933) = 115.09		
Residual	162.726598	933	.174412216	Prob > F = 0.0000		
				R-squared = 0.1098		
				Adj R-squared = 0.1089		
Total	182.800002	934	.195717347	Root MSE = .41763		

llearningswk	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
educyears	.0667383	.0062209	10.73	0.000	.0545298	.0789469
_cons	5.045459	.0848918	59.43	0.000	4.878858	5.21206

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3 . * The OLS estimates is llearningswk=0.0667383*educyears+5.045459 *
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4 . * And the standard error is 0.0062209 *
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5 . * The interpretation of the coefficient is that with the education increasing
> one year, the earnings per week will increase 0.0667383%*
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6 . * P1 Q2 *
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7 . * The sign of the omitted variable bias is supposed to be positive *
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8 . regress llearningswk educyears iq
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Source	SS	df	MS	Number of obs = 935		
Model	26.3200815	2	13.1600407	F(2, 932) = 78.38		
Residual	156.47992	932	.16789691	Prob > F = 0.0000		
				R-squared = 0.1440		
				Adj R-squared = 0.1421		
Total	182.800002	934	.195717347	Root MSE = .40975		

llearningswk	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
educyears	.0443295	.007124	6.22	0.000	.0303486	.0583104
iq	.0063412	.0010396	6.10	0.000	.004301	.0083815
_cons	4.705016	.1002625	46.93	0.000	4.50825	4.901783

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9 . * The coefficient of years of education changes from .0667383 to .0303486, whic
> h is a decrease *
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10 . regress iq educyears
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Source	SS	df	MS	Number of obs = 935		
Model	56280.9277	1	56280.9277	F(1, 933) = 338.02		
Residual	155346.531	933	166.502177	Prob > F = 0.0000		
				R-squared = 0.2659		
				Adj R-squared = 0.2652		
Total	211627.459	934	226.581862	Root MSE = 12.904		

iq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
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educyears	3.533829	.1922095	18.39	0.000	3.156616	3.911042
_cons	53.68715	2.622933	20.47	0.000	48.53962	58.83469

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11 . * The coefficient is 3.533829, which is positive, that is to say cov(x1,x2)>0.
    > *
12 . * Since  $E[b1'] = E[b1 + b2 \cdot \text{cov}(x1, x2) / \text{var}(x1)] = b1 + E[b2 \cdot \text{cov}(x1, x2) / \text{var}(x1)]$  *
13 . * And  $\text{cov}(x1, x2) > 0, \text{var}(x1) > 0$ , which means our estimate is not unbiased. *
14 .
15 . * P1 Q4 *
16 . regress iq educyears

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Source	SS	df	MS	Number of obs =	935
Model	56280.9277	1	56280.9277	F(1, 933) =	338.02
Residual	155346.531	933	166.502177	Prob > F =	0.0000
				R-squared =	0.2659
				Adj R-squared =	0.2652
Total	211627.459	934	226.581862	Root MSE =	12.904

iq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
educyears	3.533829	.1922095	18.39	0.000	3.156616 3.911042
_cons	53.68715	2.622933	20.47	0.000	48.53962 58.83469

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17 . * The coefficient of educyears is Kx *
18 . regress iq educyears kww

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Source	SS	df	MS	Number of obs =	935
Model	67623.0292	2	33811.5146	F(2, 932) =	218.83
Residual	144004.43	932	154.511191	Prob > F =	0.0000
				R-squared =	0.3195
				Adj R-squared =	0.3181
Total	211627.459	934	226.581862	Root MSE =	12.43

iq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
educyears	2.865716	.2009098	14.26	0.000	2.471428 3.260004
kww	.4949999	.0577748	8.57	0.000	.3816161 .6083836
_cons	44.99213	2.722911	16.52	0.000	39.64839 50.33588

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19 . * The coefficient of educyears is Lamdax *
20 . * Since the Lamdax is smaller than Kx, the proxy bias will be smaller than the
    > omitted variable bias *

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