Econometrics II - Assignment 2

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When we do not account for ability in the model specification, returns to one year of education are higher, as expected. Higher ability students tend to get more education, thus, they tend to get higher earnings.

From now on we are going to include the ability variable in all model specifications. For the sake of saving the space we don't report all coefficients in tables unless they are important for a specific question.

Table 1: OLS pooled model with and without ability variable

	Dependent variable:	
	EARNINGS	
	(1)	(2)
S	0.070^{***}	0.048^{***}
	(0.001)	(0.001)
ASVABC		0.011^{***}
		(0.0003)
Constant	-0.079	-0.386^{***}
	(0.051)	(0.051)
Observations	40,043	40,043
Adjusted R^2	0.292	0.313
Note:	*p<0.1; **p<0.05; ***p<0.01	

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As we can see, there is a statistically significant difference between returns to education by ethnicity. Black workers tend to get higher returns.

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Once we use a panel model with random effects, there seems to be no difference returns to education by ethnicity.

Table 2: OLS pooled model with heterogeneous effects by ethnicity

	Dependent variable:		
	EARNINGS		
	(1)	(2)	(3)
S	0.046***	0.046***	0.061***
	(0.001)	(0.001)	(0.003)
S:ETHBLACK	0.016***		
	(0.003)		
Constant	−0.370***	−0.437***	0.038
	(0.051)	(0.054)	(0.140)
Observations	40,043	35,223	4,820
Adjusted R^2	0.313	0.299	0.314
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 3: Panel regressions with random effects

	Dependent variable:		
	EARNINGS		
	(1)	(2)	(3)
S	0.051***	0.049***	0.052***
	(0.002)	(0.002)	(0.006)
S:ETHBLACK	−0.004		
	(0.006)		
Constant	−0.452***	−0.467***	−0.223*
	(0.048)	(0.050)	(0.122)
Observations	40,043	35,223	4,820
Adjusted R^2	0.366	0.371	0.322
Note:			*p<0.1; **p<0.05; ***p<0.01

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Table 4: Panel regressions with fixed effects

	Dependent variable:		
	EARNINGS		
	(1)	(2)	(3)
S	0.053***	0.049***	0.027**
	(0.004)	(0.004)	(0.011)
S:ETHBLACK	−0.062***		
	(0.012)		
Observations	40,043	35,223	4,820
Adjusted R^2	0.152	0.165	0.047
Note:		*p<0.1; **p<0.05; ***p<0.01	

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To decide between fixed or random effects we run a Hausman test. The p-value is highly significant, thus, it's preferred to use fixed effects.

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