ARE213 Problem Set #1B

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1 Problem #1

1.1 Part A

Under the assumption of random assignment conditional on the observables, what are the sources of misspecification bias in the estimates generated by the linear model estimated in Problem Set 1a?

I think this is referring to the covariance between smoking and age.

1.2 Part B

Now, consider a series estimator. Estimate the smoking effects using a flexible functional form for the control variables (e.g., higher order terms and interactions). What are the benefits and drawbacks to this approach?

2 Problem #2

2.1 Part A

To calculate the propensity score, we estimated a logit model of mother's tobacco use (0=non-smoker, 1=smoker) as determined by the predetermined covariates shown in Table

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Table 1: Propensity scores calculated for mother's smoking status

	Mother Tobacco-Use Status	
	(1)	(2)
Mother's Race not White or Black	−1.956***	−1.954***
	(0.134)	(0.133)
Mother's Years of Education	−0.817***	−0.818***
	(0.028)	(0.028)
Marital status	−0.205***	−0.204***
	(0.005)	(0.005)
Father's age	−1.256***	−1.251***
	(0.022)	(0.021)
Father's Years of Education	0.029***	0.030***
	(0.002)	(0.001)
Father Mexican	−0.131***	−0.131***
	(0.005)	(0.005)
Father Puerto Rican	−1.961***	−1.957***
	(0.173)	(0.173)
Father Cuban	−1.267***	−1.268***
	(0.058)	(0.058)
Father Central or South American	−0.567	−0.567
	(0.364)	(0.364)
Father Race Other or Unknown Hispanic	−1.933***	−1.932***
	(0.205)	(0.205)
Plurality of Infant	−0.890***	−0.889***
	(0.120)	(0.120)
Sex of Infant	−0.148***	
	(0.054)	
Mother's age	−0.019	
	(0.017)	
dmage	0.003	
	(0.002)	
Constant	2.873***	2.707***
	(0.088)	(0.064)
N	114,610	114,610
Log Likelihood	-44,310.690	-44,315.790
Akaike Inf. Crit.	88,651.370	88,655.580

Notes: ***Significant at the 1 percent level.