

### Additional Empirical Exercise 8.3

Using the data set **Growth** described in Empirical Exercise 4.1, excluding the data for Malta, run the following five regressions: *Growth* on

- (1) *TradeShare* and *YearsSchool*;
- (2) *TradeShare* and  $\ln(\text{YearsSchool})$ ;
- (3) *TradeShare*,  $\ln(\text{YearsSchool})$ , *Rev\_Coups*, *Assassinations* and  $\ln(\text{RGDP60})$ ;
- (4) *TradeShare*,  $\ln(\text{YearsSchool})$ , *Rev\_Coups*, *Assassinations*,  $\ln(\text{RGDP60})$ , and  $\text{Trade-Share} \times \ln(\text{YearsSchool})$ ;

and

- (5) *TradeShare*,  $\text{TradeShare}^2$ ,  $\text{TradeShare}^3$ ,  $\ln(\text{YearsSchool})$ , *Rev\_Coups*, *Assassinations*, and  $\ln(\text{RGDP60})$ .

- a. Construct a scatterplot of *Growth* on *YearsSchool*. Does the relationship look linear or nonlinear? Explain. Use the plot to explain why regression (2) fits better than regression (1).
- b. In 1960, a country contemplated an education policy that would increase average years of schooling from 4 years to 6 years. Use regression (1) to predict the increase in *Growth*. Use regression (2) to predict the increase in *Growth*.
- c. Test whether the coefficients on *Assassinations* and *Rev\_Coups* are equal to zero using regression (3).
- d. Using regression (4), is there evidence that the effect of *TradeShare* on *Growth* depends on the level of education in the country?
- e. Using regression (5), is there evidence of a nonlinear relationship between *TradeShare* and *Growth*?
- f. In 1960, a country contemplated a trade policy that would increase the average value of *TradeShare* from 0.5 to 1. Use regression (3) to predict the increase in *Growth*. Use regression (5) to predict the increase in *Growth*.