

**DEPARTMENT OF POLITICAL SCIENCE  
AND  
INTERNATIONAL RELATIONS**  
Posc/Uapp 816

**Assignment 5  
TWO VARIABLE REGRESSION**

Name \_\_\_\_\_

(Printed)

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For Assignment 4 you found estimates of regression parameters. This time let's test them "for significance" and place confidence intervals around them.

1. Here are the mobility and divorce data again.

Region	Mobility rate	Divorce rate
New England	41	4.0
Middle Atlantic	37	3.4
East North Central	44	5.1
West North Central	46	4.6
South Atlantic	47	5.6
East South Central	44	6.0
West South Central	50	6.5
Mountain	57	7.6
Pacific	56	5.9

A. What is the estimated regression coefficient of divorce on mobility? \_\_\_\_\_

B. For this situation what are the degrees of freedom for testing the hypothesis that  $\beta_{\text{divorce, mobility}} = 0$ ? \_\_\_\_\_

C. What are the critical t values for the .05 \_\_\_\_\_ and .01 \_\_\_\_\_ levels?

D. What is the observed t? \_\_\_\_\_  
i. Use MINITAB.

E. Do you accept or reject the null hypothesis? Why?

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2. Here are the population change data again.

<b>City</b>	<b>Percent change</b>	<b>Total crime</b>	<b>Murder</b>
<b>Los Angeles, CA</b>	-1.1	7680.0	24.5
<b>Dallas, TX</b>	1.5	9464.1	26.5
<b>Los Vegas, NV</b>	27	7584.5	14.9
<b>Baltimore, MD</b>	-4.5	13318.4	45.6
<b>Milwaukee, WS</b>	-1.8	8462.9	22.2
<b>El Paso, TX</b>	12.4	7063.9	6.3
<b>Washington, D.C.</b>	-6.6	12166.4	65.2
<b>Denver, Co</b>	5.5	6873.5	16.0
<b>Oklahoma City, OK</b>	4.2	11501.8	48.7
<b>Virginia Beach, VA</b>	9.5	4651.8	3.7
<b>St. Louis, MO</b>	-7.2	16082.9	54.9
<b>Colorado Springs, CO</b>	.6	6765.2	5.5
<b>Buffalo, NY</b>	-4.6	9205.3	19.8
<b>Louisville, KY</b>	.3	7149.0	18.3
<b>Jersey City, NJ</b>	-1.1	7946.0	11.0

A. What is the estimated regression of murder rate on percent change? \_\_\_\_\_

B. What are 95 percent confidence limits for this estimate? Lower \_\_\_\_\_ Upper \_\_\_\_\_

C. Do they include 0? What conclusion do you draw from this fact?

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