

"Corrected SS"  $\sum (x_i - \bar{x})^2$

$S_{xx} = \sum x_i^2 - n\bar{x}^2$   
 $= \sum (x_i - \bar{x})^2$

All 23 cities

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The REG Procedure

Number of Observations Read 23  
 Number of Observations Used 23

Variable	Sum	Mean	Uncorrected SS	Variance	Standard Deviation
Intercept	23.00000	1.00000	23.00000	0	0
popn	23545	1023.69565	106222377	3732703	1932.02041
violcrim	12546	545.49565	8863416	91791	302.97083
		All 23 cities			2

$\sum x_i$

$\bar{x}$

$\sum x_i^2$

$\frac{\sum (x_i - \bar{x})^2}{n-1}$

From simple option

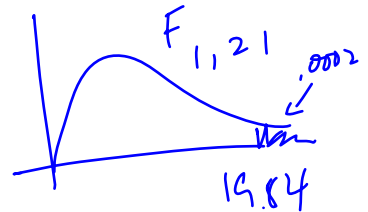
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The REG Procedure

Model: MODEL1

Dependent Variable: violcrim

Number of Observations Read 23  
 Number of Observations Used 23



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	981020	981020	19.84	0.0002
Error	21	1038389	49447		
Corrected Total	22	2019409			

Root MSE 222.36701 R-Square 0.4858  
 Dependent Mean 545.49565 Adj R-Sq 0.4613  
 Coeff Var 40.76421

Conclusion:  
 Strong evidence that slope is not 0

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	433.60680	52.73408	8.22	<.0001
popn	1	0.10930	0.02454	4.45	0.0002

New York City deleted from data

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The REG Procedure

Number of Observations Read 22  
 Number of Observations Used 22

Descriptive Statistics

Variable	Sum	Mean	Uncorrected SS	Variance	Standard Deviation
Intercept	22.00000	1.00000	22.00000	0	0
popn	14425	655.69545	23053449	647374	804.59529
violcrim	11077	503.47727	6702810	53621	231.56237
New York City deleted from data					4
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The REG Procedure  
 Model: MODEL1  
 Dependent Variable: violcrim

Number of Observations Read 22  
 Number of Observations Used 22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	97518	97518	1.90	0.1837
Error	20	1028526	51426		
Corrected Total	21	1126044			

Root MSE 226.77367 R-Square 0.0866  
 Dependent Mean 503.47727 Adj R-Sq 0.0409  
 Coeff Var 45.04149

*much lower*

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	447.94352	62.95962	7.11	<.0001
popn	1	0.08469	0.06150	1.38	0.1837

NYC, Boston and Washington deleted from data 5  
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*not a big change*

*data are consistent of slope of 0*

The REG Procedure

Number of Observations Read 20  
 Number of Observations Used 20

Descriptive Statistics

Variable	Sum	Mean	Uncorrected SS	Variance	Standard Deviation
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Intercept	20.00000	1.00000	20.00000	0	0
popn	8601.70000	430.08500	6052245	123831	351.89584
violcrim	9735.30000	486.76500	5802398	55979	236.59807

NYC, Boston and Washington deleted from data 6  
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The REG Procedure  
 Model: MODEL1  
 Dependent Variable: violcrim

Number of Observations Read 20  
 Number of Observations Used 20

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	42242	42242	0.74	0.3996
Error	18	1021352	56742		
Corrected Total	19	1063594			

Root MSE	238.20531	R-Square	0.0397
Dependent Mean	486.76500	Adj R-Sq	-0.0136
Coeff Var	48.93641		

lots of variation in y's - not explained by line

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	429.13646	85.42869	5.02	<.0001
popn	1	0.13399	0.15530	0.86	0.3996

largest slope

least precise est. of slope

no evidence of a relationship