

Ch7 - Ex2 - USA Crime Rate (*crime*) by State

Per Cent Metro (*met*), White (*wh*), High School (*hs*), Poverty (*pv*), Single Parent (*sp*)

CORR crime TO sp /STAT /MISS = LIST.

	Mean	Std. Deviation	N
crime	572.90	295.603	49
met	66.5755	21.86913	49
wh	86.0653	9.12696	49
hs	76.2082	5.66197	49
pv	14.1388	4.24135	49
sp	11.1510	1.46132	49

	crime	met	wh	hs	pv
met	.610				
	.000				
wh	-.684	-.293			
	.000	.041			
hs	-.287	.008	.508		
	.046	.956	.000		
pv	.350	-.148	-.434	-.773	
	.014	.310	.002	.000	
sp	.639	.171	-.686	-.222	.407
	.000	.239	.000	.125	.004

REGRESS /DEP = crime /ENTER met TO sp /SAVE PRED(prdc.mwhps) RESID(resc.mwhps)

Model	R	R Square
1	.867	.751

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3151553.947	5	630310.789	25.993	.000
	Residual	1042736.542	43	24249.687		
	Total	4194290.490	48			

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	-599.782	656.310			-.914	.366
	met	7.090	1.137	.525		6.234	.000
	wh	-10.125	4.193	-.313		-2.415	.020
	hs	9.265	7.425	.177		1.248	.219
	pv	23.113	9.719	.332		2.378	.022
	sp	48.353	24.191	.239		1.999	.052

	Mean	Std. Deviation	N
Predicted Value	572.90	256.237	49
Residual	.000	147.390	49

VARIABLE LABEL prdc.mwhps ' ' resc.mwhps ' ' .
LIST met TO sp crime prdc.mwhps resc.mwhps /CASES = FROM 1 TO 5.

```

met    wh    hs    pv    sp crime  prdc.mwhps  resc.mwhps
41.80  75.20  86.60  9.10  14.30  761  639.32585  121.67415
67.40  73.50  66.90  17.40  11.50  780  711.97953  68.02047
44.70  82.90  66.30  20.00  10.70  593  471.70047  121.29953
84.70  88.60  78.70  15.40  12.10  715  773.86900  -58.86900
96.70  79.30  76.20  18.20  12.50  1078  1014.01429  63.98571

```

CORR prdc.mwhps resc.mwhps WITH crime TO sp /MISS = LIST.

	crime	met	wh	hs	pv	sp
prdc.mwhps	.867	.703	-.789	-.331	.403	.737
resc.mwhps	.499	.000	.000	.000	.000	.000

REGRESS /STAT = DEFAU CHANGE ZPP /DEP = crime /ENTER met hs TO sp /ENTER wh.

Model	Change Statistics						
	R	R Square	R Square Change	F Change	df1	df2	Sig. F Change
1	.847	.718	.718	27.962	4	44	.000
2	.867	.751	.034	5.832	1	43	.020

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3010138.613	4	752534.653	27.962	.000
	Residual	1184151.877	44	26912.543		
	Total	4194290.490	48			
2	Regression	3151553.947	5	630310.789	25.993	.000
	Residual	1042736.542	43	24249.687		
	Total	4194290.490	48			

Model		Unstandardized Coefficients			Sig.	Correlations		
		B	Std. Error	t		Zero-order	Partial	Part
1	(Constant)	-1233.679	633.697	-1.947	.058			
	met	7.766	1.161	6.687	.000	.610	.710	.536
	hs	.613	6.852	.089	.929	-.287	.013	.007
	pv	18.626	10.049	1.853	.071	.350	.269	.148
	sp	87.837	18.782	4.677	.000	.639	.576	.375
2	(Constant)	-599.782	656.310	-.914	.366			
	met	7.090	1.137	6.234	.000	.610	.689	.474
	hs	9.265	7.425	1.248	.219	-.287	.187	.095
	pv	23.113	9.719	2.378	.022	.350	.341	.181
	sp	48.353	24.191	1.999	.052	.639	.292	.152
	wh	-10.125	4.193	-2.415	.020	-.684	-.346	-.184

REGRESS /DEP = wh /ENTER met hs TO sp /SAVE RES(resw.mhps).

Model	R	R Square
1	.809	.655

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2619.093	4	654.773	20.886	.000
	Residual	1379.378	44	31.349		
	Total	3998.471	48			

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	62.605	21.628	2.895	.006
	met	-.067	.040	-1.684	.099
	hs	.855	.234	3.654	.001
	pv	.443	.343	1.292	.203
	sp	-3.900	.641	-6.083	.000

	Mean	Std. Deviation
Predicted Value	86.0653	7.38677
Residual	.00000	5.36069

VARI LABEL resw.mhps ''.
CORR resw.mhps WITH crime met hs TO sp /MISS = LIST.

	crime	met	hs	pv	sp
resw.mhps	-.184	.000	.000	.000	.000

REGRESS /VARI = crime TO sp /DEP = crime /FORWARD.

Model	Variables Entered	Variables Removed	Method
1	wh	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
2	met	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
3	sp	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
4	pv	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

Model	R	R Square
1	.684	.468
2	.807	.651
3	.845	.714
4	.862	.742

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1963225.968	1	1963225.968	41.358	.000
	Residual	2231064.522	47	47469.458		
	Total	4194290.490	48			
2	Regression	2730634.136	2	1365317.068	42.909	.000
	Residual	1463656.354	46	31818.616		
	Total	4194290.490	48			
3	Regression	2995934.204	3	998644.735	37.501	.000
	Residual	1198356.286	45	26630.140		
	Total	4194290.490	48			
4	Regression	3113797.751	4	778449.438	31.700	.000
	Residual	1080492.739	44	24556.653		
	Total	4194290.490	48			

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	2479.966	298.172	8.317	.000
	wh	-22.158	3.446	-6.431	.000
2	(Constant)	1711.731	289.939	5.904	.000
	wh	-17.910	2.951	-6.070	.000
	met	6.047	1.231	4.911	.000
3	(Constant)	251.199	533.364	.471	.640
	wh	-10.122	3.657	-2.768	.008
	met	6.199	1.128	5.497	.000
	sp	69.964	22.166	3.156	.003
4	(Constant)	-129.886	540.911	-.240	.811
	wh	-7.601	3.696	-2.057	.046
	met	6.993	1.142	6.124	.000
	sp	62.351	21.568	2.891	.006
	pv	13.870	6.331	2.191	.034

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	met	.447	4.911	.000	.586	.914
	hs	.082	.662	.511	.097	.742
	pv	.065	.544	.589	.080	.811
	sp	.320	2.288	.027	.320	.530
2	hs	-.013	-.125	.901	-.019	.715
	pv	.241	2.495	.016	.349	.728
	sp	.346	3.156	.003	.426	.529
3	hs	-.080	-.830	.411	-.124	.682
	pv	.199	2.191	.034	.314	.709
4	hs	.177	1.248	.219	.187	.286

REGRESS /VARI = crime TO sp /DEP = crime /BACKWARD.

Model	Variables Entered	Variables Removed	Method
1	sp, met, hs, wh, pv	.	Enter
2	.	hs	Backward (criterion: Probability of F-to-remove >= .100).

Model	R	R Square
1	.867	.751
2	.862	.742

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3151553.947	5	630310.789	25.993	.000
	Residual	1042736.542	43	24249.687		
	Total	4194290.490	48			
2	Regression	3113797.751	4	778449.438	31.700	.000
	Residual	1080492.739	44	24556.653		
	Total	4194290.490	48			

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	-599.782	656.310	-.914	.366
	met	7.090	1.137	6.234	.000
	wh	-10.125	4.193	-2.415	.020
	hs	9.265	7.425	1.248	.219
	pv	23.113	9.719	2.378	.022
	sp	48.353	24.191	1.999	.052
2	(Constant)	-129.886	540.911	-.240	.811
	met	6.993	1.142	6.124	.000
	wh	-7.601	3.696	-2.057	.046
	pv	13.870	6.331	2.191	.034
	sp	62.351	21.568	2.891	.006

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	hs	.177	1.248	.219	.187	.286

REGRESS /VARI = crime TO sp /CRITERION = PIN(.035) POUT(.04) /DEP = crime /STEP.

Model	Variables Entered	Variables Removed	Method
1	wh	.	Stepwise (Criteria: Probability-of-F-to-enter <= .035, Probability-of-F-to-remove >= .040).
2	met	.	Stepwise (Criteria: Probability-of-F-to-enter <= .035, Probability-of-F-to-remove >= .040).
3	sp	.	Stepwise (Criteria: Probability-of-F-to-enter <= .035, Probability-of-F-to-remove >= .040).
4	pv	.	Stepwise (Criteria: Probability-of-F-to-enter <= .035, Probability-of-F-to-remove >= .040).
5	.	wh	Stepwise (Criteria: Probability-of-F-to-enter <= .035, Probability-of-F-to-remove >= .040).

Model	R	R Square
1	.684	.468
2	.807	.651
3	.845	.714
4	.862	.742
5	.847	.718

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1963225.968	1	1963225.968	41.358	.000
	Residual	2231064.522	47	47469.458		
	Total	4194290.490	48			
2	Regression	2730634.136	2	1365317.068	42.909	.000
	Residual	1463656.354	46	31818.616		
	Total	4194290.490	48			
3	Regression	2995934.204	3	998644.735	37.501	.000
	Residual	1198356.286	45	26630.140		
	Total	4194290.490	48			
4	Regression	3113797.751	4	778449.438	31.700	.000
	Residual	1080492.739	44	24556.653		
	Total	4194290.490	48			
5	Regression	3009923.126	3	1003307.709	38.121	.000
	Residual	1184367.363	45	26319.275		
	Total	4194290.490	48			

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	2479.966	298.172	8.317	.000
	wh	-22.158	3.446	-6.431	.000
2	(Constant)	1711.731	289.939	5.904	.000
	wh	-17.910	2.951	-6.070	.000
	met	6.047	1.231	4.911	.000
3	(Constant)	251.199	533.364	.471	.640
	wh	-10.122	3.657	-2.768	.008
	met	6.199	1.128	5.497	.000
	sp	69.964	22.166	3.156	.003
4	(Constant)	-129.886	540.911	-.240	.811
	wh	-7.601	3.696	-2.057	.046
	met	6.993	1.142	6.124	.000
	sp	62.351	21.568	2.891	.006
	pv	13.870	6.331	2.191	.034
5	(Constant)	-1179.518	185.566	-6.356	.000
	met	7.743	1.120	6.913	.000
	sp	88.195	18.147	4.860	.000
	pv	17.925	6.229	2.878	.006

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	met	.447	4.911	.000	.586	.914
	hs	.082	.662	.511	.097	.742
	pv	.065	.544	.589	.080	.811
	sp	.320	2.288	.027	.320	.530
2	hs	-.013	-.125	.901	-.019	.715
	pv	.241	2.495	.016	.349	.728
	sp	.346	3.156	.003	.426	.529
3	hs	-.080	-.830	.411	-.124	.682
	pv	.199	2.191	.034	.314	.709
4	hs	.177	1.248	.219	.187	.286
5	hs	.012	.089	.929	.013	.373
	wh	-.235	-2.057	.046	-.296	.450

```

DATA LIST FREE /id (F2.0) state (A2) crime (F4.0) met (F5.2) wh (F5.2) hs (F5.2) pv (F5.2) sp (F5.2).
BEGIN DATA
  1 ak      761 41.80 75.20 86.60  9.10 14.30  2 al      780 67.40 73.50 66.90 17.40 11.50
  3 ar      593 44.70 82.90 66.30 20.00 10.70  4 az      715 84.70 88.60 78.70 15.40 12.10
  5 ca     1078 96.70 79.30 76.20 18.20 12.50  6 co      567 81.80 92.50 84.40  9.90 12.10
  7 ct      456 95.70 89.00 79.20  8.50 10.10  8 de      686 82.70 79.40 77.50 10.20 11.40
  9 fl     1206 93.00 83.50 74.40 17.80 10.60 10 ga     723 67.70 70.80 70.90 13.50 13.00
 12 ia      326 43.80 96.60 80.10 10.30  9.00 13 id     282 30.00 96.70 79.70 13.10  9.50
 14 il      960 84.00 81.00 76.20 13.60 11.50 15 in     489 71.60 90.60 75.60 12.20 10.80
 16 ks      496 54.60 90.90 81.30 13.10  9.90 17 ky     463 48.50 91.80 64.60 20.40 10.60
 18 la     1062 75.00 66.70 68.30 26.40 14.90 19 ma     805 96.20 91.10 80.00 10.70 10.90
 20 md     998 92.80 68.90 78.40  9.70 12.00 21 me     126 35.70 98.50 78.80 10.70 10.60
 22 mi     792 82.70 83.10 76.80 15.40 13.00 23 mn     327 69.30 94.00 82.40 11.60  9.90
 24 mo     744 68.30 87.60 73.90 16.10 10.90 25 ms     434 30.70 63.30 64.30 24.70 14.70
 26 mt     178 24.00 92.60 81.00 14.90 10.80 27 nc     679 66.30 75.20 70.00 14.40 11.10
 28 nd       82 41.60 94.20 76.70 11.20  8.40 29 ne     339 50.60 94.30 81.80 10.30  9.40
 30 nh     138 59.40 98.00 82.20  9.90  9.20 31 nj     627 100.00 80.80 76.70 10.90  9.60
 32 nm     930 56.00 87.10 75.10 17.40 13.80 33 nv     875 84.80 86.70 78.80  9.80 12.40
 34 ny     1074 91.70 77.20 74.80 16.40 12.70 35 oh     504 81.30 87.50 75.70 13.00 11.40
 36 ok     635 60.10 82.50 74.60 19.90 11.10 37 or     503 70.00 93.60 81.50 11.80 11.30
 38 pa     418 84.80 88.70 74.70 13.20  9.60 39 ri     402 93.60 92.60 72.00 11.20 10.80
 40 sc     1023 69.80 68.60 68.30 18.70 12.30 41 sd     208 32.60 90.20 77.10 14.20  9.40
 42 tn     766 67.70 82.80 67.10 19.60 11.20 43 tx     762 83.90 85.10 72.10 17.40 11.80
 44 ut     301 77.50 94.80 85.10 10.70 10.00 45 va     372 77.50 77.10 75.20  9.70 10.30
 46 vt     114 27.00 98.40 80.80 10.00 11.00 47 wa     515 83.00 89.40 83.80 12.10 11.70
 48 wi     264 68.10 92.10 78.60 12.60 10.40 49 wv     208 41.80 96.30 66.00 22.20  9.40
 50 wy     286 29.70 95.90 83.00 13.30 10.80
END DATA.

```