Rocket Propellant Example

The REG Procedure

Number of Observations Read	20
Number of Observations Used	20

Descriptive Statistics						
Variable	**Sum**	**Mean**	**Uncorrected SS**	**Variance**	**Standard Deviation**	**Label**
Intercept	20.00000	1.00000	20.00000	0	0	Intercept
age	267.25000	13.36250	4677.68750	58.23997	7.63151	Age of Propellant (week)
shear	42627	2131.35750	92547433	89144	298.57007	Shear Strength (psi)

Correlation			
Variable	**Label**	**age**	**shear**
age	Age of Propellant (week)	1.0000	-0.9497
shear	Shear Strength (psi)	-0.9497	1.0000

Rocket Propellant Example

The REG Procedure
Model: MODEL1

Model Crossproducts X'X X'Y Y'Y				
Variable	**Label**	**Intercept**	**age**	**shear**
Intercept	Intercept	20	267.25	42627.15
age	Age of Propellant (week)	267.25	4677.6875	528492.6375
shear	Shear Strength (psi)	42627.15	528492.6375	92547433.458

Rocket Propellant Example

The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)

Number of Observations Read	20
Number of Observations Used	20

X'X Inverse, Parameter Estimates, and SSE				
Variable	**Label**	**Intercept**	**age**	**shear**
Intercept	Intercept	0.2113617943	-0.012075719	2627.822359
age	Age of Propellant (week)	-0.012075719	0.0009037021	-37.15359094
shear	Shear Strength (psi)	2627.822359	-37.15359094	166254.85807

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	1527483	1527483	165.38	<.0001
Error	18	166255	9236.38100		
Corrected Total	19	1693738			

Root MSE	96.10609	**R-Square**	0.9018
Dependent Mean	2131.35750	**Adj R-Sq**	0.8964
Coeff Var	4.50915		

Rocket Propellant Example

The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent			Type I SS	Type II SS	Standardized Estimate	Squared Semi-partial Corr Type I	Squared Partial Corr Type I	Squared Semi-partial Corr Type II
							Standard Error	t Value	Pr > |t|						
Intercept	Intercept	1	2627.82236	44.18391	59.47	<.0001	42.50043	61.83	<.0001	90853696	32671233	0	.	.	.
age	Age of Propellant (week)	1	-37.15359	2.88911	-12.86	<.0001	2.72898	-13.61	<.0001	1527483	1527483	-0.94965	0.90184	0.90184	0.90184

Parameter Estimates

Variable	Label	DF	Squared Partial Corr Type II	Tolerance	Variance Inflation	95% Confidence Limits		Heteroscedasticity Consistent 95% Confidence Limits	
Intercept	Intercept	1	.	.	0	2534.99540	2720.64931	2538.53227	2717.11244
age	Age of Propellant (week)	1	0.90184	1.00000	1.00000	-43.22338	-31.08380	-42.88696	-31.42022

Covariance of Estimates

Variable	Label	Intercept	age
Intercept	Intercept	1952.2180618	-111.535941
age	Age of Propellant (week)	-111.535941	8.346936651

Correlation of Estimates

Variable	Label	Intercept	age
Intercept	Intercept	1.0000	-0.8737
age	Age of Propellant (week)	-0.8737	1.0000

Rocket Propellant Example

The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)

Sequential Parameter Estimates	
Intercept	**age**
2131.357500	0
2627.822359	-37.153591

Rocket Propellant Example

The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)

Heteroscedasticity Consistent Covariance of Estimates			
Variable	**Label**	**Intercept**	**age**
Intercept	Intercept	1806.2863118	-101.792931
age	Age of Propellant (week)	-101.792931	7.447321229

Test of First and Second Moment Specification		
DF	**Chi-Square**	**Pr > ChiSq**
2	0.03	0.9844

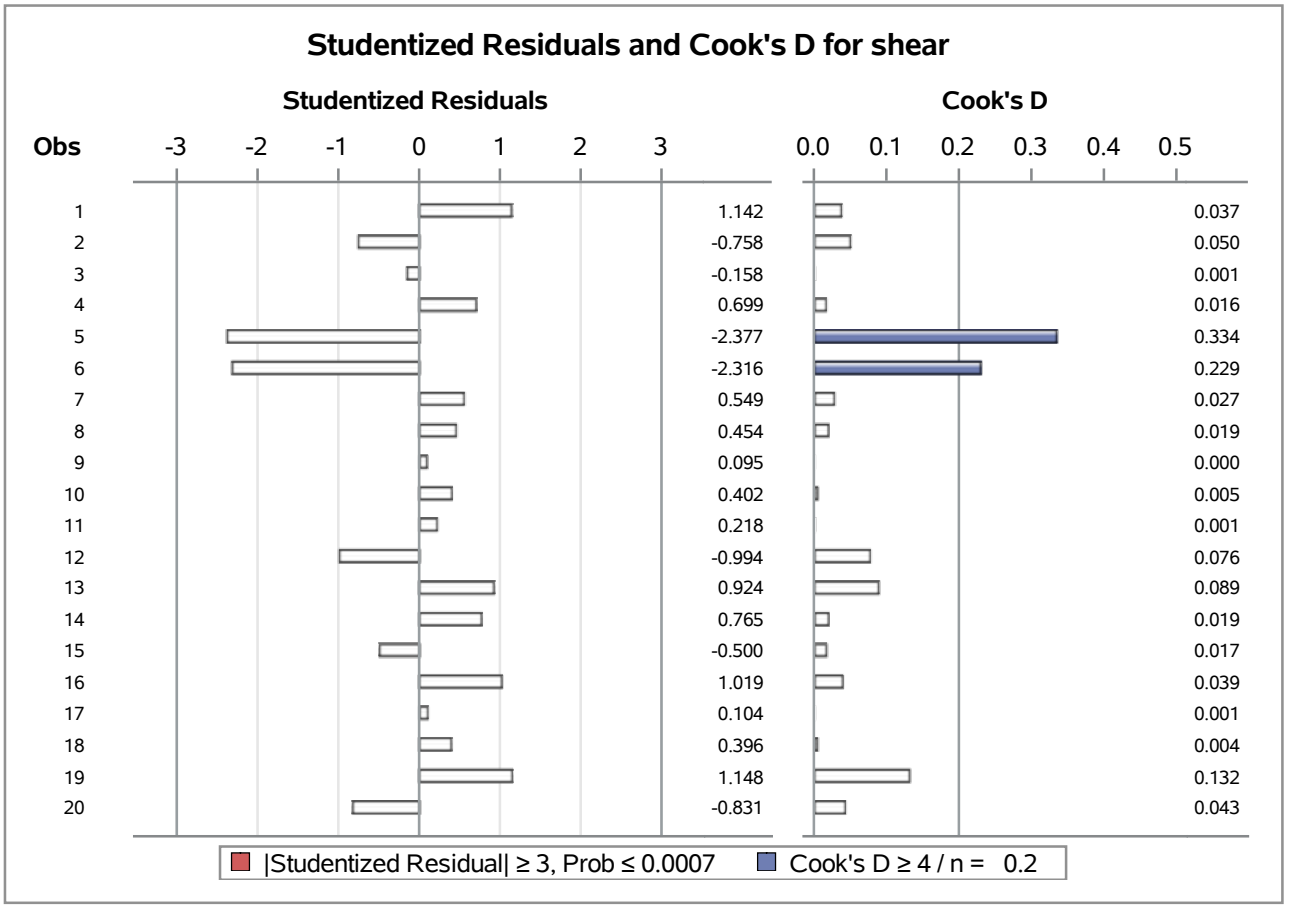
Rocket Propellant Example

The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)

Output Statistics											
Obs	Dependent Variable	Predicted Value	Std Error Mean Predict	95% CL Mean		95% CL Predict		Residual	Std Error Residual	Student Residual	Cook's D
1	2159	2052	22.3597	2005	2099	1845	2259	106.7583	93.469	1.142	0.037
2	1678	1745	36.9114	1668	1823	1529	1962	-67.2746	88.735	-0.758	0.050
3	2316	2331	26.4924	2275	2386	2121	2540	-14.5936	92.383	-0.158	0.001
4	2061	1996	23.9220	1946	2046	1788	2204	65.0887	93.081	0.699	0.016
5	2208	2423	31.2701	2358	2489	2211	2636	-215.9776	90.877	-2.377	0.334
6	1708	1922	26.9647	1865	1979	1712	2132	-213.6041	92.246	-2.316	0.229
7	1785	1736	37.5010	1657	1815	1519	1953	48.5638	88.488	0.549	0.027
8	2575	2535	38.0356	2455	2615	2318	2752	40.0616	88.259	0.454	0.019
9	2358	2349	27.3623	2292	2407	2139	2559	8.7296	92.129	0.095	0.000
10	2257	2219	22.5479	2172	2267	2012	2427	37.5671	93.424	0.402	0.005
11	2165	2145	21.5155	2100	2190	1938	2352	20.3743	93.667	0.218	0.001
12	2400	2488	35.1152	2415	2562	2274	2703	-88.9464	89.461	-0.994	0.076
13	1780	1699	39.9031	1615	1783	1480	1918	80.8174	87.431	0.924	0.089
14	2337	2266	23.8903	2215	2316	2058	2474	71.1752	93.089	0.765	0.019
15	1765	1810	32.9326	1741	1880	1597	2024	-45.1434	90.287	-0.500	0.017
16	2054	1959	25.3245	1906	2012	1750	2168	94.4423	92.709	1.019	0.039
17	2414	2405	30.2370	2341	2468	2193	2617	9.4992	91.226	0.104	0.001
18	2201	2163	21.6340	2118	2209	1956	2370	37.0975	93.639	0.396	0.004
19	2654	2554	39.2360	2471	2636	2335	2772	100.6848	87.732	1.148	0.132
20	1754	1829	31.8519	1762	1896	1616	2042	-75.3202	90.674	-0.831	0.043

Rocket Propellant Example

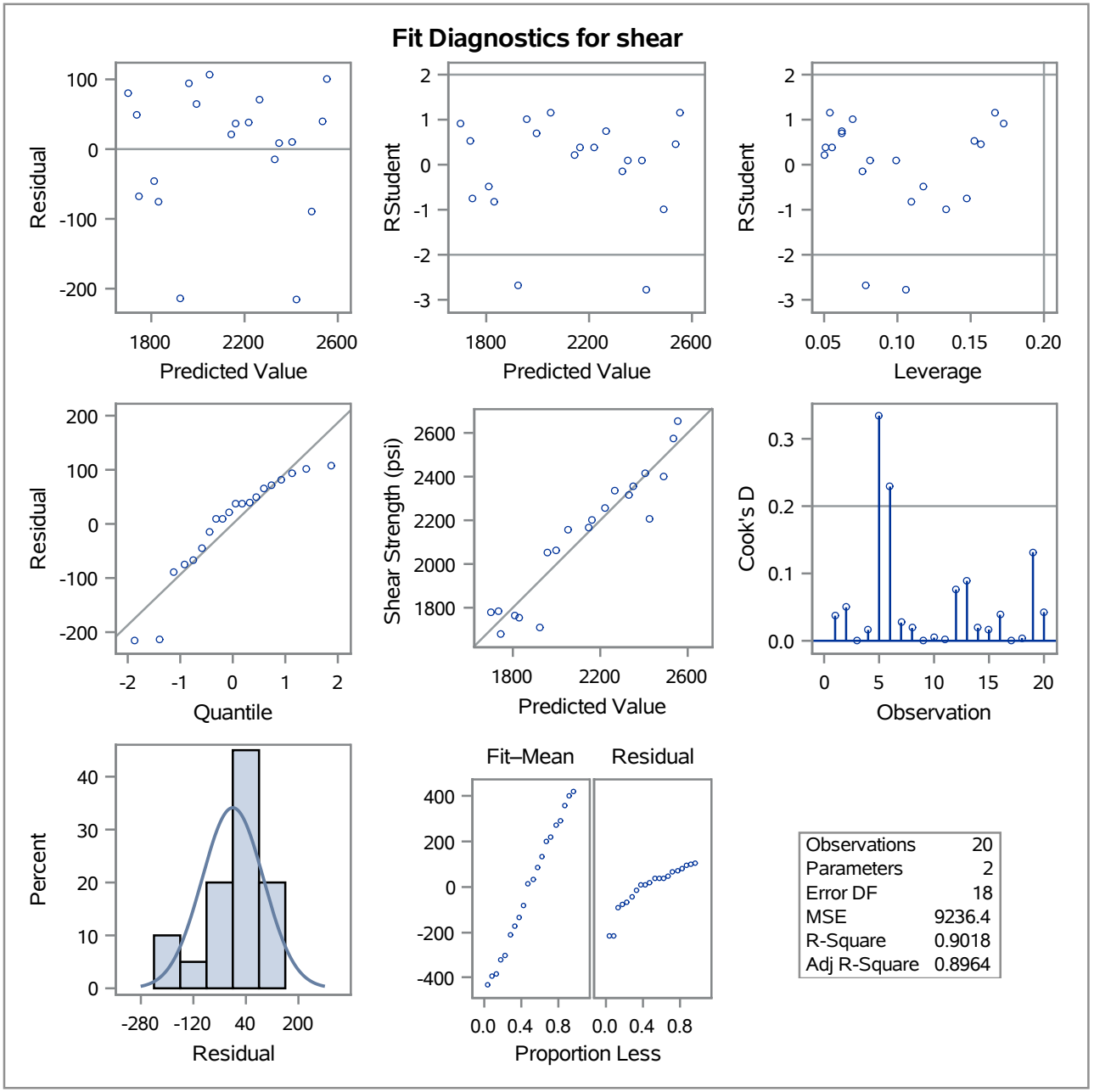
The REG Procedure
Model: MODEL1
Dependent Variable: shear Shear Strength (psi)



Sum of Residuals	0
Sum of Squared Residuals	166255
Predicted Residual SS (PRESS)	205944

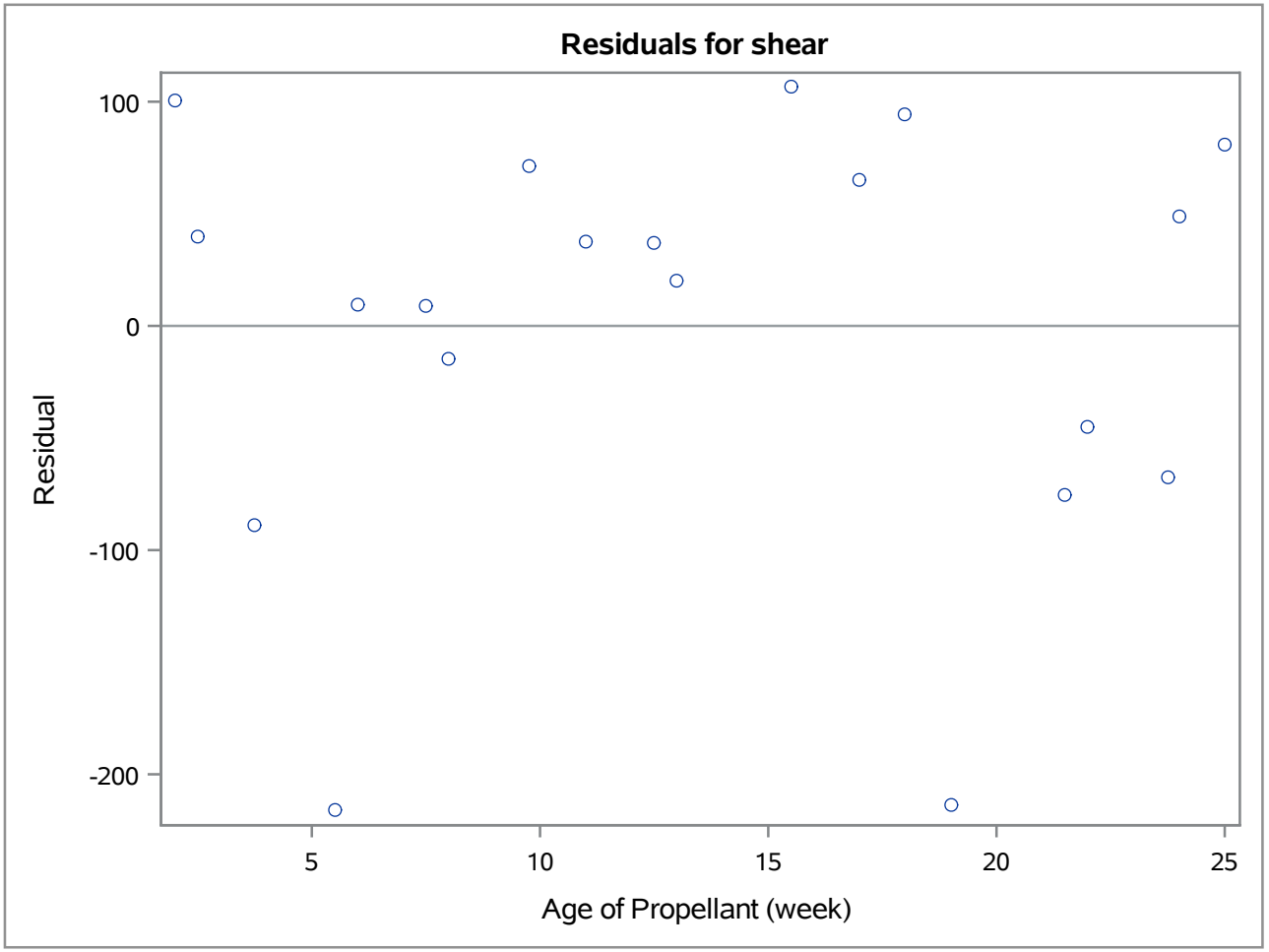
Rocket Propellant Example

The REG Procedure
Model: MODEL1



Rocket Propellant Example

The REG Procedure
Model: MODEL1



Rocket Propellant Example

The REG Procedure
Model: MODEL1