

Main Regression
The REG Procedure
Model: MODEL1
Dependent Variable: invent

Number of Observations Read	34
Number of Observations Used	34

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	202146	101073	3335.32	<.0001
Error	31	939.41979	30.30386		
Corrected Total	33	203086			

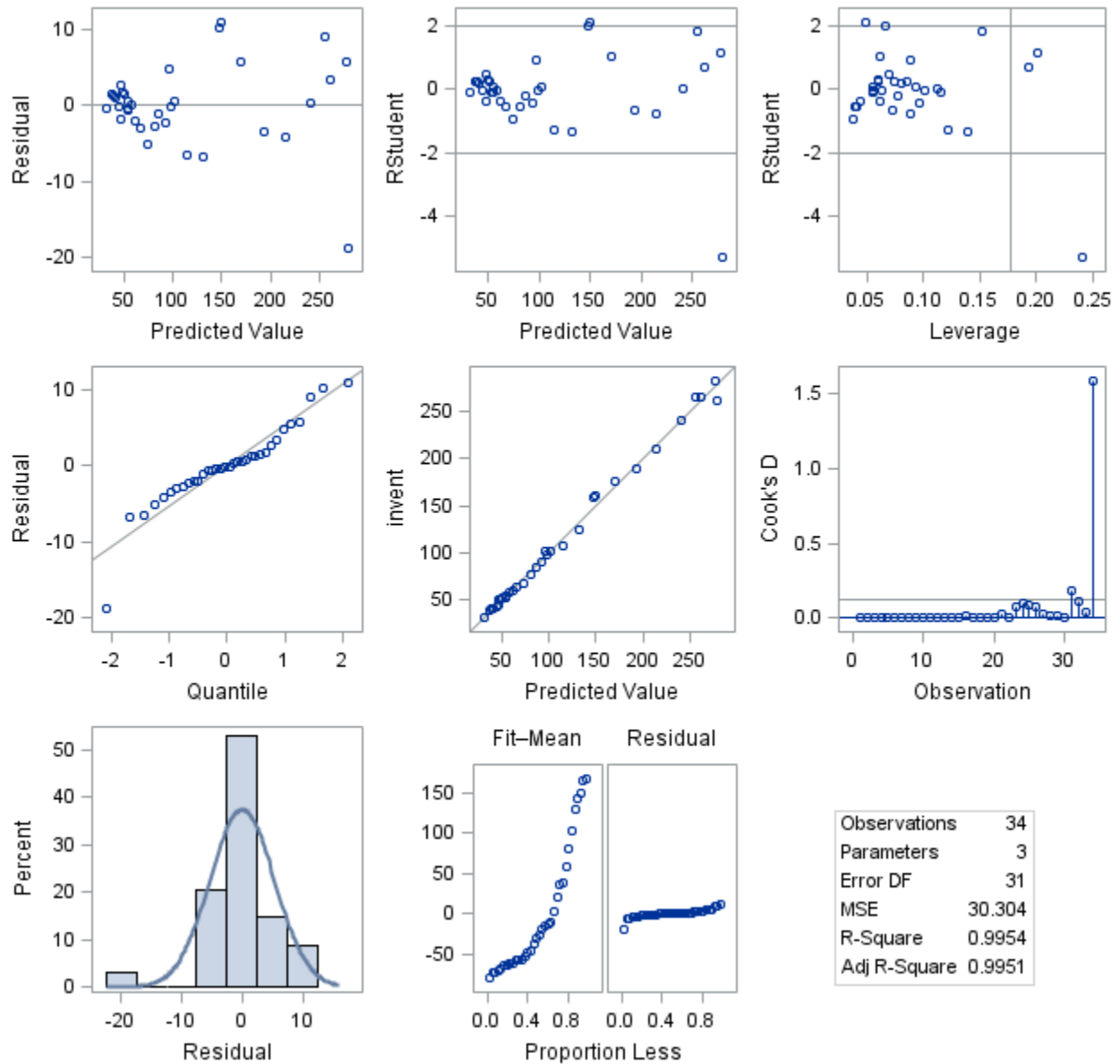
Root MSE	5.50489	R-Square	0.9954
Dependent Mean	111.74412	Adj R-Sq	0.9951
Coeff Var	4.92634		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	-26.60247	9.27162	-2.87	0.0073
sales	1	1.46751	0.04950	29.65	<.0001
gdppc	1	6.91174	1.93388	3.57	0.0012

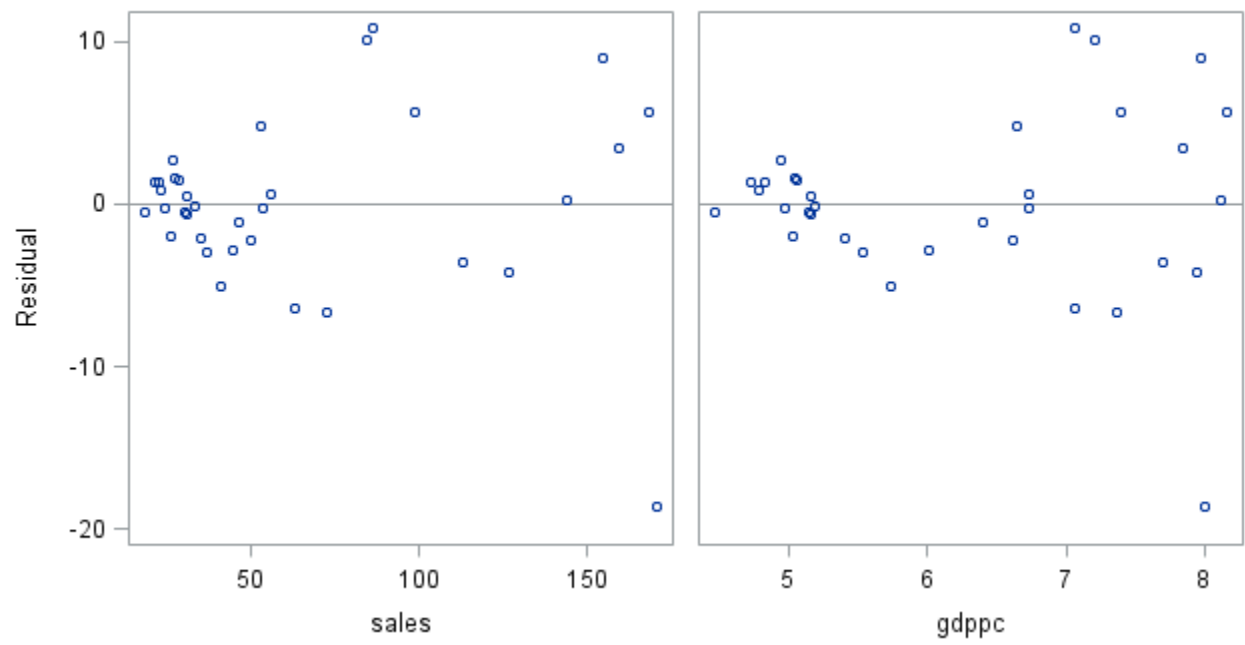
Main Regression

The REG Procedure
Model: MODEL1
Dependent Variable: invent

Fit Diagnostics for invent



Residual by Regressors for invent



First Whites Test

The REG Procedure
Model: MODEL1
Dependent Variable: residsq

Number of Observations Read	34
Number of Observations Used	34

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	64211	12842	5.16	0.0018
Error	28	69625	2486.60873		
Corrected Total	33	133836			

Root MSE	49.86591	R-Square	0.4798
Dependent Mean	27.62999	Adj R-Sq	0.3869
Coeff Var	180.47745		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	2508.41025	1385.80366	1.81	0.0810
sales	1	41.20690	15.80963	2.61	0.0145
gdppc	1	-1112.65743	567.83044	-1.96	0.0601
salessqd	1	0.06638	0.02562	2.59	0.0150
gdppcsqd	1	114.11211	55.71442	2.05	0.0500
salesgdp	1	-7.10677	2.71313	-2.62	0.0141

First Goldfeld-Quandt Tests

Obs	year	invent	sales	gdppc
1	50	31.1	18.6	4.47
2	51	39.3	21.7	4.73
3	52	41.1	22.5	4.83
4	54	41.6	23.3	4.79
5	53	43.9	24.8	4.98
6	55	45.1	26.5	5.03
7	58	50.2	27.2	4.95
8	56	50.6	27.7	5.05
9	57	51.9	28.7	5.06
10	59	52.9	30.3	5.15
11	60	53.8	30.9	5.16
12	61	54.9	30.9	5.16
13	62	58.2	33.4	5.19
14	63	60.0	35.0	5.40
15	64	63.4	37.3	5.54
16	65	68.2	41.0	5.74
17	66	78.0	44.9	6.01
18	67	84.7	46.5	6.40
19	68	90.6	50.2	6.62
20	70	101.6	52.8	6.64
21	69	98.2	53.5	6.73
22	71	102.6	55.9	6.74
23	72	108.2	63.0	7.06
24	73	124.6	72.9	7.37
25	74	157.8	84.8	7.21
26	75	159.9	86.4	7.07
27	76	175.2	98.8	7.40
28	77	189.2	113.2	7.70
29	78	210.4	126.9	7.95
30	79	240.9	143.9	8.11
31	80	264.1	154.4	7.97
32	82	264.6	159.2	7.84
33	81	282.1	168.1	8.16
34	83	260.4	170.6	8.00

First Goldfeld-Quandt Tests
GQ Test Low Subsample

The REG Procedure
Model: MODEL1
Dependent Variable: invent

Number of Observations Read	13
Number of Observations Used	13

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	686.19840	343.09920	188.47	<.0001
Error	10	18.20468	1.82047		
Corrected Total	12	704.40308			

Root MSE	1.34925	R-Square	0.9742
Dependent Mean	47.27692	Adj R-Sq	0.9690
Coeff Var	2.85392		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	-16.08872	23.82861	-0.68	0.5149
sales	1	1.54975	0.31194	4.97	0.0006
gdppc	1	4.44251	6.37593	0.70	0.5018

First Goldfeld-Quandt Tests
GQ Test High Subsample

The REG Procedure
Model: MODEL1
Dependent Variable: invent

Number of Observations Read	13
Number of Observations Used	13

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	47106	23553	298.86	<.0001
Error	10	788.10393	78.81039		
Corrected Total	12	47894			

Root MSE	8.87752	R-Square	0.9835
Dependent Mean	195.38462	Adj R-Sq	0.9803
Coeff Var	4.54361		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	46.77842	95.89026	0.49	0.6362
sales	1	1.56523	0.17011	9.20	<.0001
gdppc	1	-4.18946	15.01166	-0.28	0.7859

WLS Regression

The REG Procedure
Model: MODEL1
Dependent Variable: invent2

Number of Observations Read	34
Number of Observations Used	34

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.07757	0.03879	8.82	0.0009
Error	31	0.13629	0.00440		
Corrected Total	33	0.21386			

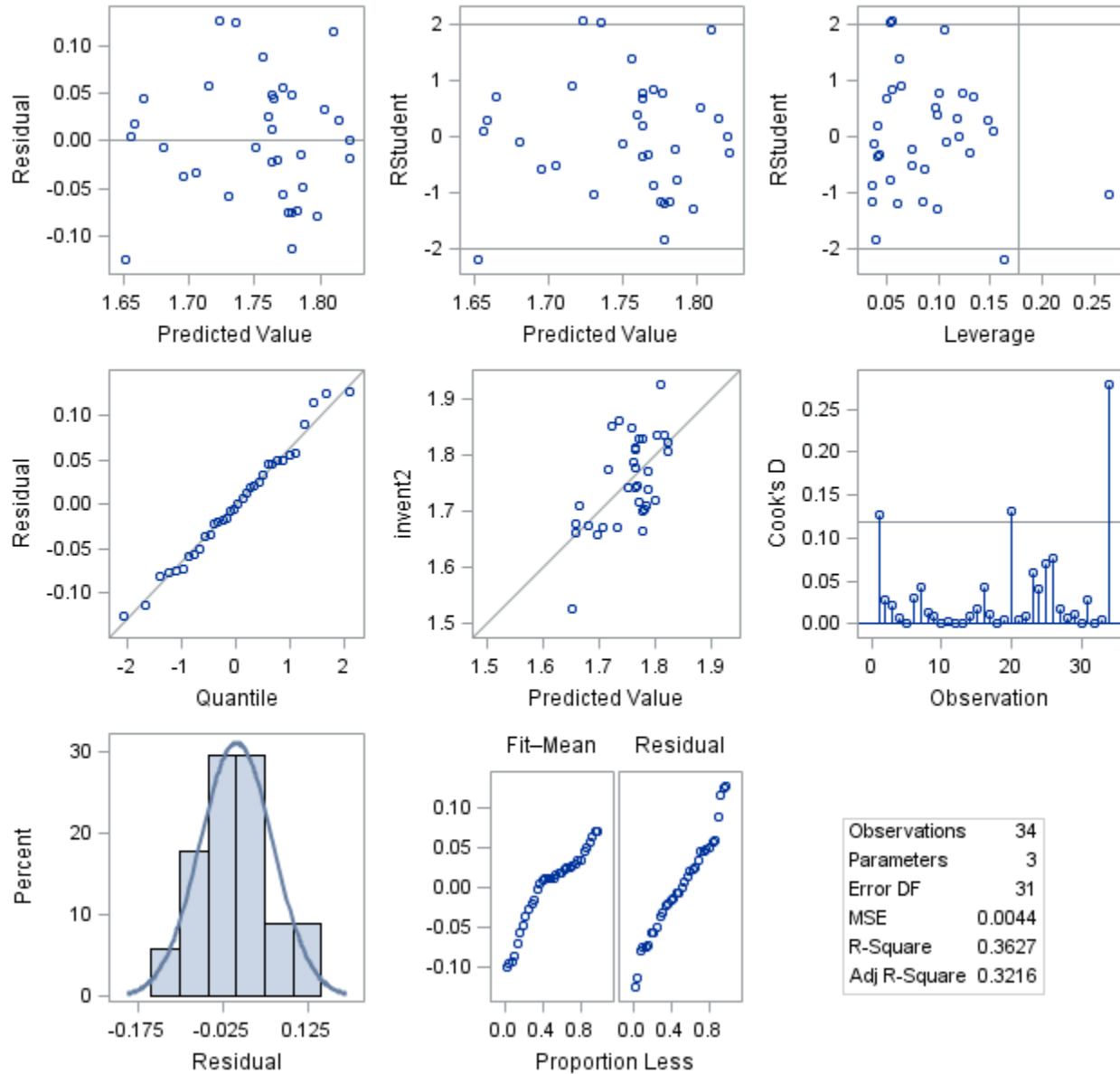
Root MSE	0.06631	R-Square	0.3627
Dependent Mean	1.75242	Adj R-Sq	0.3216
Coeff Var	3.78372		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	1.52194	0.05650	26.94	<.0001
sales2	1	-19.40016	5.80116	-3.34	0.0022
gdppc2	1	5.20782	1.41565	3.68	0.0009

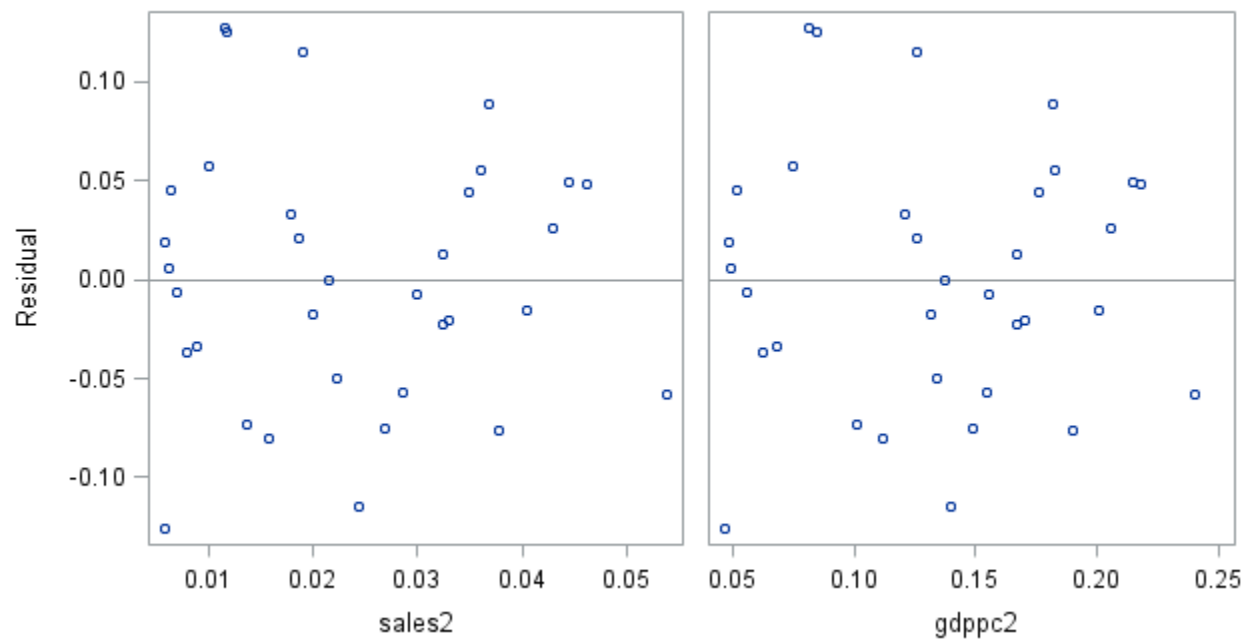
WLS Regression

The REG Procedure
Model: MODEL1
Dependent Variable: invent2

Fit Diagnostics for invent2



Residual by Regressors for invent2



Second Whites Test

The REG Procedure
Model: MODEL1
Dependent Variable: resid2sq

Number of Observations Read	34
Number of Observations Used	34

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	0.00008846	0.00001769	0.67	0.6506
Error	28	0.00074123	0.00002647		
Corrected Total	33	0.00082969			

Root MSE	0.00515	R-Square	0.1066
Dependent Mean	0.00401	Adj R-Sq	-0.0529
Coeff Var	128.35195		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	-0.02097	0.02281	-0.92	0.3657
sales2	1	-4.87241	5.87067	-0.83	0.4136
gdppc2	1	1.31790	1.33893	0.98	0.3334
sales2sq	1	-162.70493	276.94290	-0.59	0.5616
gdppc2sq	1	-13.75282	16.53744	-0.83	0.4127
sales2gdp2	1	95.49508	136.53432	0.70	0.4901

PROC CORR RESULTS FOR FINAL R-SQUARED VALUE CALCULATION

The CORR Procedure

2 Variables: invent inventp

Simple Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
invent	34	111.74412	78.44813	3799	31.10000	282.10000
inventp	34	111.83963	78.92858	3803	32.18601	281.89834

Pearson Correlation Coefficients, N = 34		
Prob > r under H0: Rho=0		
	invent	inventp
invent	1.00000	0.99762 <.0001
inventp	0.99762 <.0001	1.00000

PROC MODEL WLS

The MODEL Procedure

Model Summary	
Model Variables	1
Parameters	3
Equations	1
Number of Statements	1

Model Variables	invent
Parameters	b1 b2 b3
Equations	invent

The Equation to Estimate is	
invent =	F(b1(1), b2(sales), b3(gdppc))

NOTE: At OLS Iteration 1 CONVERGE=0.001 Criteria Met.

PROC MODEL WLS

The MODEL Procedure OLS Estimation Summary

Data Set Options	
DATA=	ORIGDATA

Minimization Summary	
Parameters Estimated	3
Method	Gauss
Iterations	1

Final Convergence Criteria	
R	0
PPC	0
RPC(b1)	263391.8
Object	0.998503
Trace(S)	30.30386
Objective Value	27.62999

Observations Processed	
Read	34
Solved	34

PROC MODEL WLS

The MODEL Procedure

Nonlinear OLS Summary of Residual Errors							
Equation	DF Model	DF Error	SSE	MSE	Root MSE	R-Square	Adj R-Sq
invent	3	31	939.4	30.3039	5.5049	0.9954	0.9951

Nonlinear OLS Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
b1	-26.6025	9.2716	-2.87	0.0073
b2	1.467515	0.0495	29.65	<.0001
b3	6.911738	1.9339	3.57	0.0012

Number of Observations		Statistics for System	
Used	34	Objective	27.6300
Missing	0	Objective*N	939.4198

Heteroscedasticity Test					
Equation	Test	Statistic	DF	Pr > ChiSq	Variables
invent	White's Test	16.31	5	0.0060	Cross of all vars

PROC MODEL WLS

The MODEL Procedure

Model Summary	
Model Variables	1
Parameters	3
Equations	1
Number of Statements	2

Model Variables	invent
Parameters	b1 b2 b3
Equations	invent

The Equation to Estimate is	
invent =	F(b1(1), b2(sales), b3(gdppc))

Observations will be weighted by	salesinv2
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NOTE: At OLS Iteration 1 CONVERGE=0.001 Criteria Met.

PROC MODEL WLS

The MODEL Procedure OLS Estimation Summary

Data Set Options	
DATA=	ORIGDATA

Minimization Summary	
Parameters Estimated	3
Method	Gauss
Iterations	1

Final Convergence Criteria	
R	0
PPC	0
RPC(b1)	192081.8
Object	0.998697
Trace(S)	0.004397
Objective Value	0.004009

Observations Processed	
Read	34
Solved	34

PROC MODEL WLS

The MODEL Procedure

Nonlinear OLS Summary of Residual Errors							
Equation	DF Model	DF Error	SSE	MSE	Root MSE	R-Square	Adj R-Sq
invent	3	31	0.1363	0.00440	0.0663	0.9944	0.9940

Nonlinear OLS Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > t
b1	-19.4002	5.8012	-3.34	0.0022
b2	1.52194	0.0565	26.94	<.0001
b3	5.207819	1.4157	3.68	0.0009

Number of Observations		Statistics for System	
Used	34	Objective	0.004009
Missing	0	Objective*N	0.1363
Sum of Weights	0.0255		

Heteroscedasticity Test					
Equation	Test	Statistic	DF	Pr > ChiSq	Variables
invent	White's Test	12.64	5	0.0270	Cross of all vars