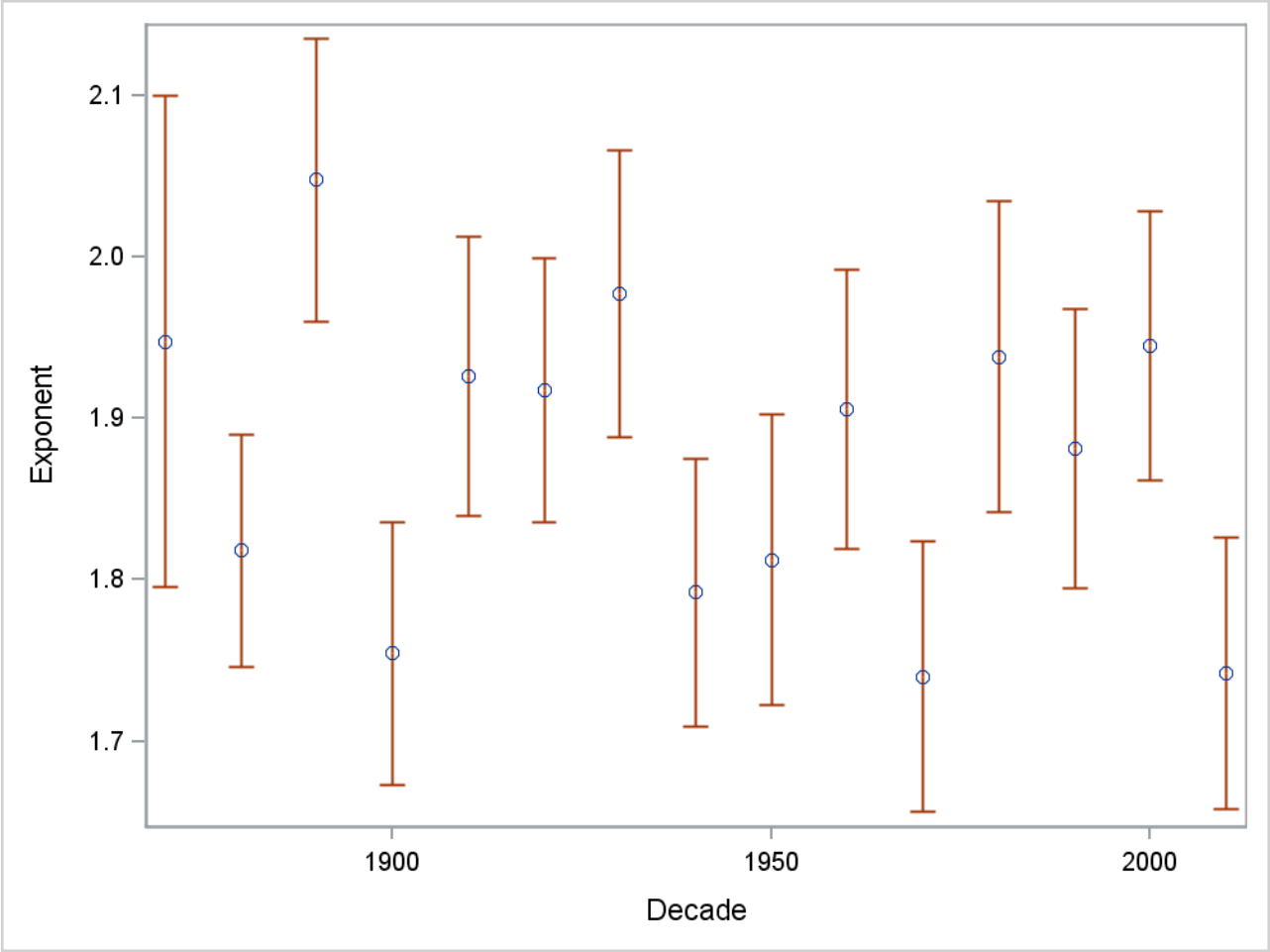
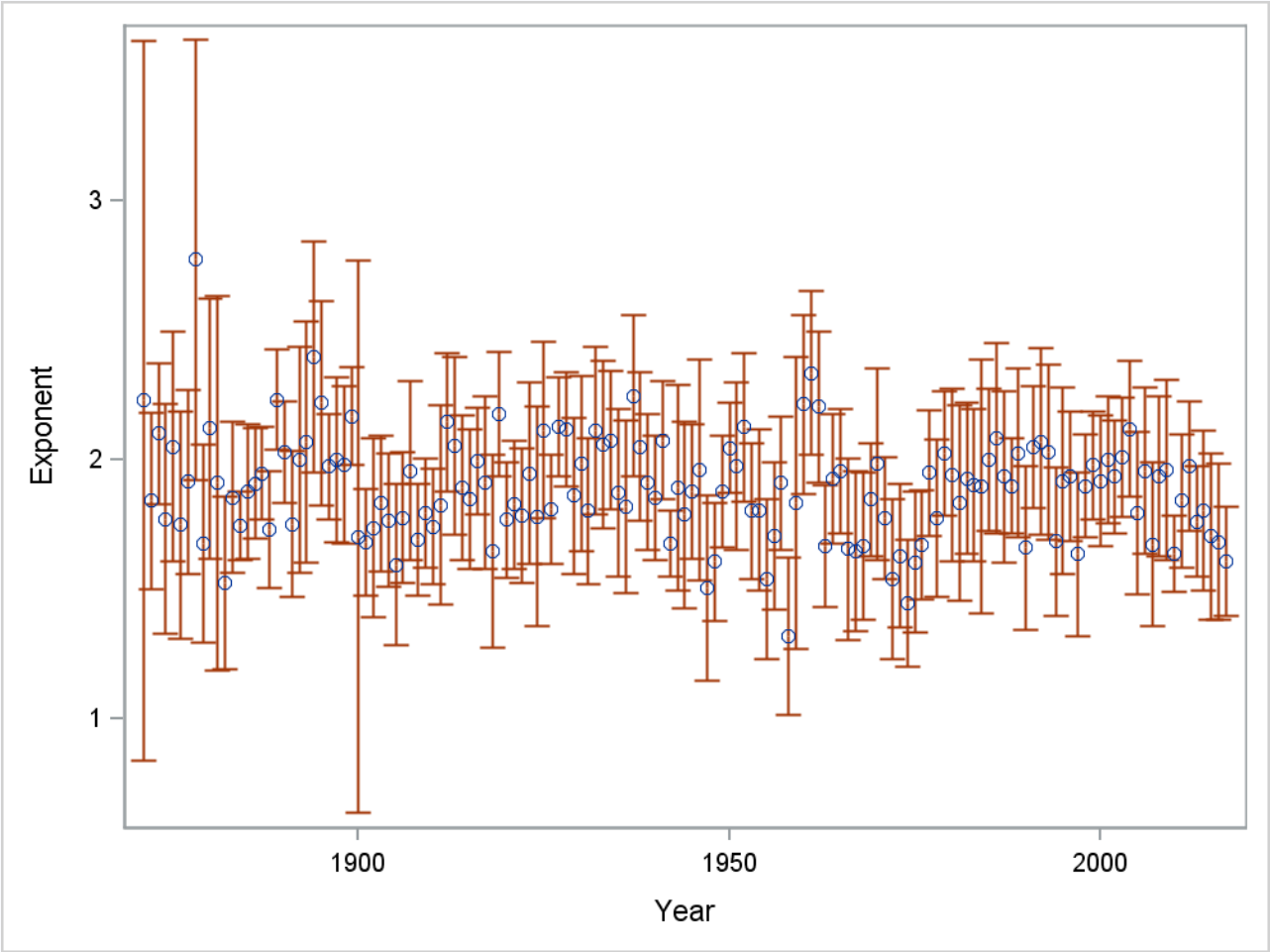
Estimates of Pythogorean Exponent by Decade

Obs	decade	Model	Dependent	Variable	DF	Estimate	StdErr	tValue	Probt	LowerCL	UpperCL
1	1870	MODEL1	log_wl	log_rra	1	1.94769	0.07626	25.54	<.0001	1.79578	2.09960
2	1880	MODEL1	log_wl	log_rra	1	1.81809	0.03650	49.81	<.0001	1.74600	1.89018
3	1890	MODEL1	log_wl	log_rra	1	2.04762	0.04431	46.21	<.0001	1.96000	2.13524
4	1900	MODEL1	log_wl	log_rra	1	1.75445	0.04108	42.71	<.0001	1.67329	1.83560
5	1910	MODEL1	log_wl	log_rra	1	1.92607	0.04399	43.79	<.0001	1.83925	2.01288
6	1920	MODEL1	log_wl	log_rra	1	1.91741	0.04154	46.15	<.0001	1.83536	1.99946
7	1930	MODEL1	log_wl	log_rra	1	1.97738	0.04498	43.96	<.0001	1.88854	2.06622
8	1940	MODEL1	log_wl	log_rra	1	1.79214	0.04186	42.81	<.0001	1.70946	1.87481
9	1950	MODEL1	log_wl	log_rra	1	1.81236	0.04572	39.64	<.0001	1.72206	1.90267
10	1960	MODEL1	log_wl	log_rra	1	1.90554	0.04396	43.34	<.0001	1.81884	1.99224
11	1970	MODEL1	log_wl	log_rra	1	1.73991	0.04245	40.99	<.0001	1.65630	1.82351
12	1980	MODEL1	log_wl	log_rra	1	1.93812	0.04885	39.68	<.0001	1.84193	2.03430
13	1990	MODEL1	log_wl	log_rra	1	1.88133	0.04398	42.78	<.0001	1.79475	1.96790
14	2000	MODEL1	log_wl	log_rra	1	1.94508	0.04248	45.79	<.0001	1.86148	2.02869
15	2010	MODEL1	log_wl	log_rra	1	1.74223	0.04283	40.68	<.0001	1.65785	1.82661



Error bars indicate the 95% CI for the exponent estimation. Notice no particular pattern throughout.

Estimates of Pythagorean Exponent by Year



The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate

Number of Observations Read	147
Number of Observations Used	147

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.17392	0.17392	4.44	0.0368
Error	145	5.67803	0.03916		
Corrected Total	146	5.85195			

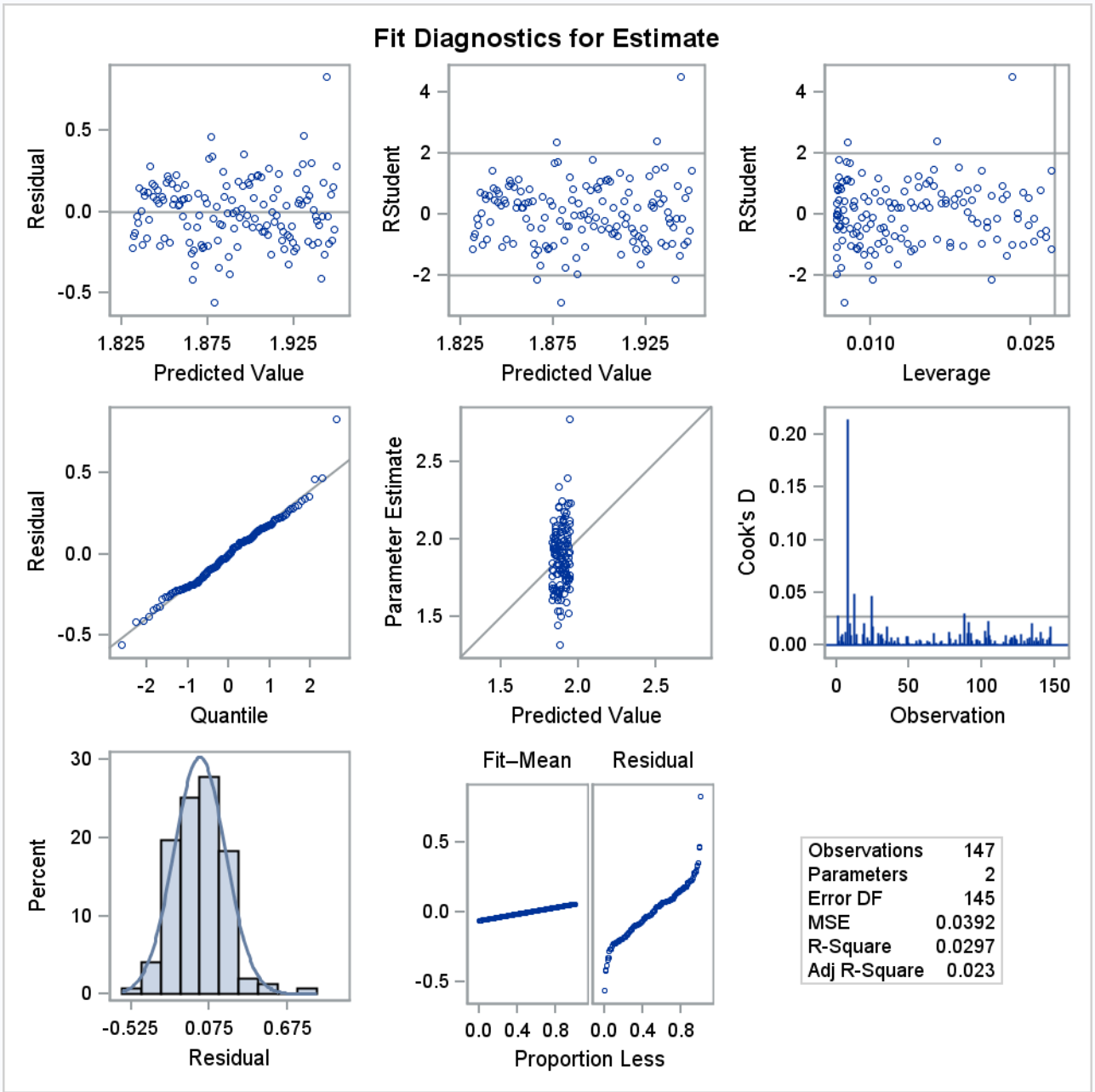
Root MSE	0.19789	R-Square	0.0297
Dependent Mean	1.89059	Adj R-Sq	0.0230
Coeff Var	10.46686		

Linear Regression of Pythagorean Exponent as a Function of Year

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate

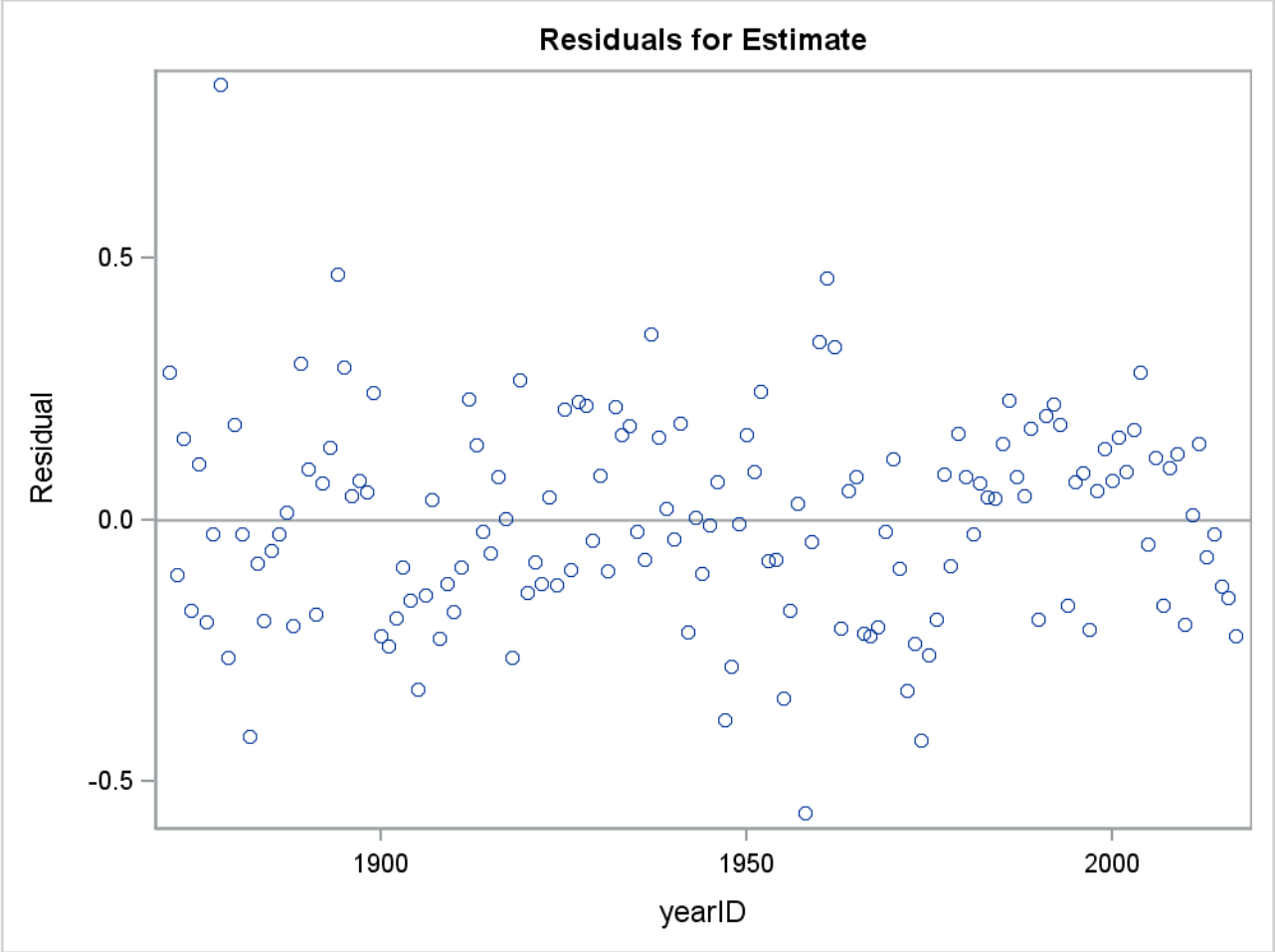
Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	95% Confidence Limits	
Intercept	Intercept	1	3.46639	0.74789	4.63	<.0001	1.98821	4.94457
yearID		1	-0.00081059	0.00038463	-2.11	0.0368	-0.00157	-0.00005039



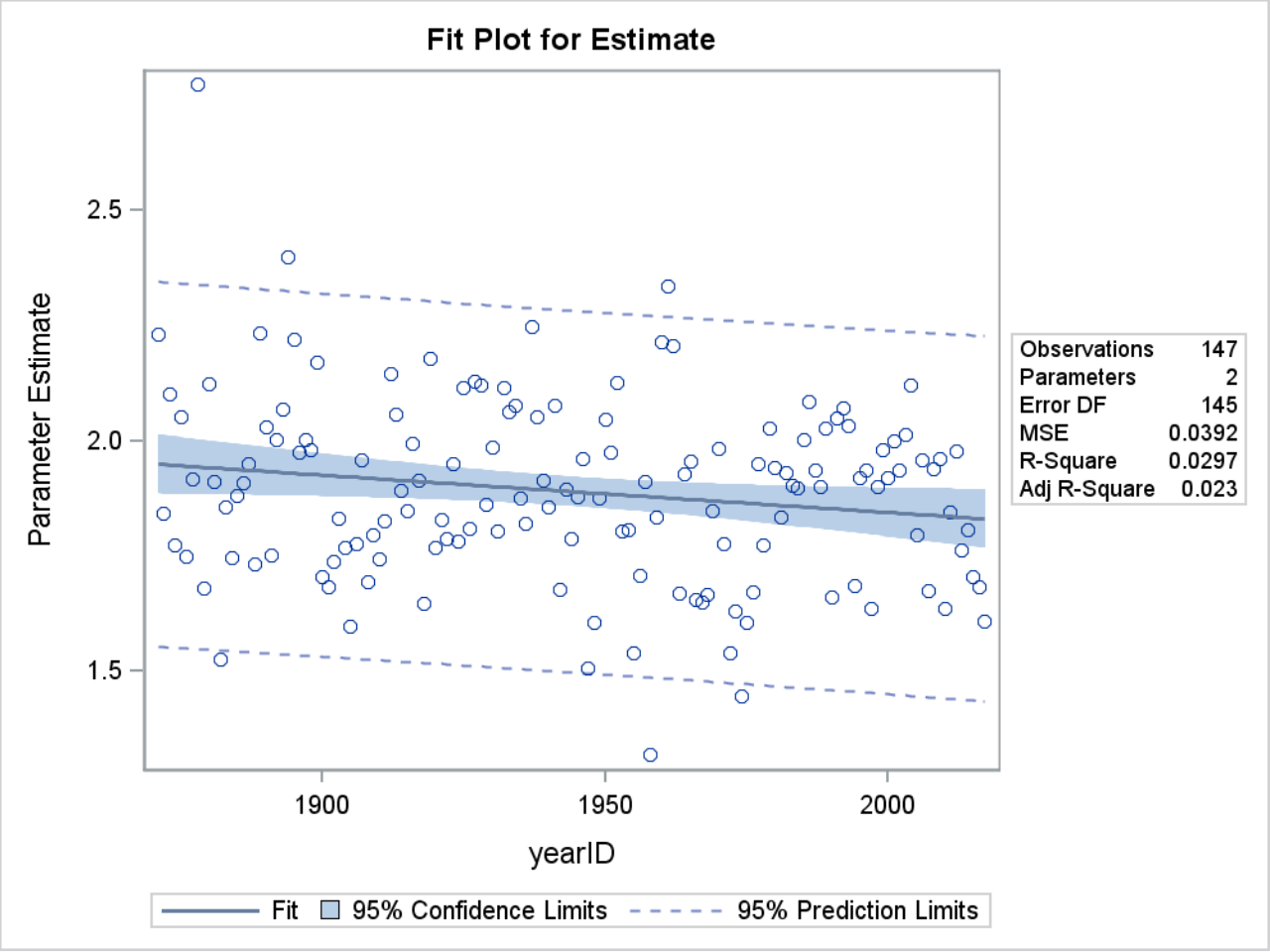
Linear Regression of Pythagorean Exponent as a Function of Year

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate



Linear Regression of Pythagorean Exponent as a Function of Year

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate



The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate

Number of Observations Read	146
Number of Observations Used	146

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.09331	0.09331	2.70	0.1024
Error	144	4.97273	0.03453		
Corrected Total	145	5.06604			

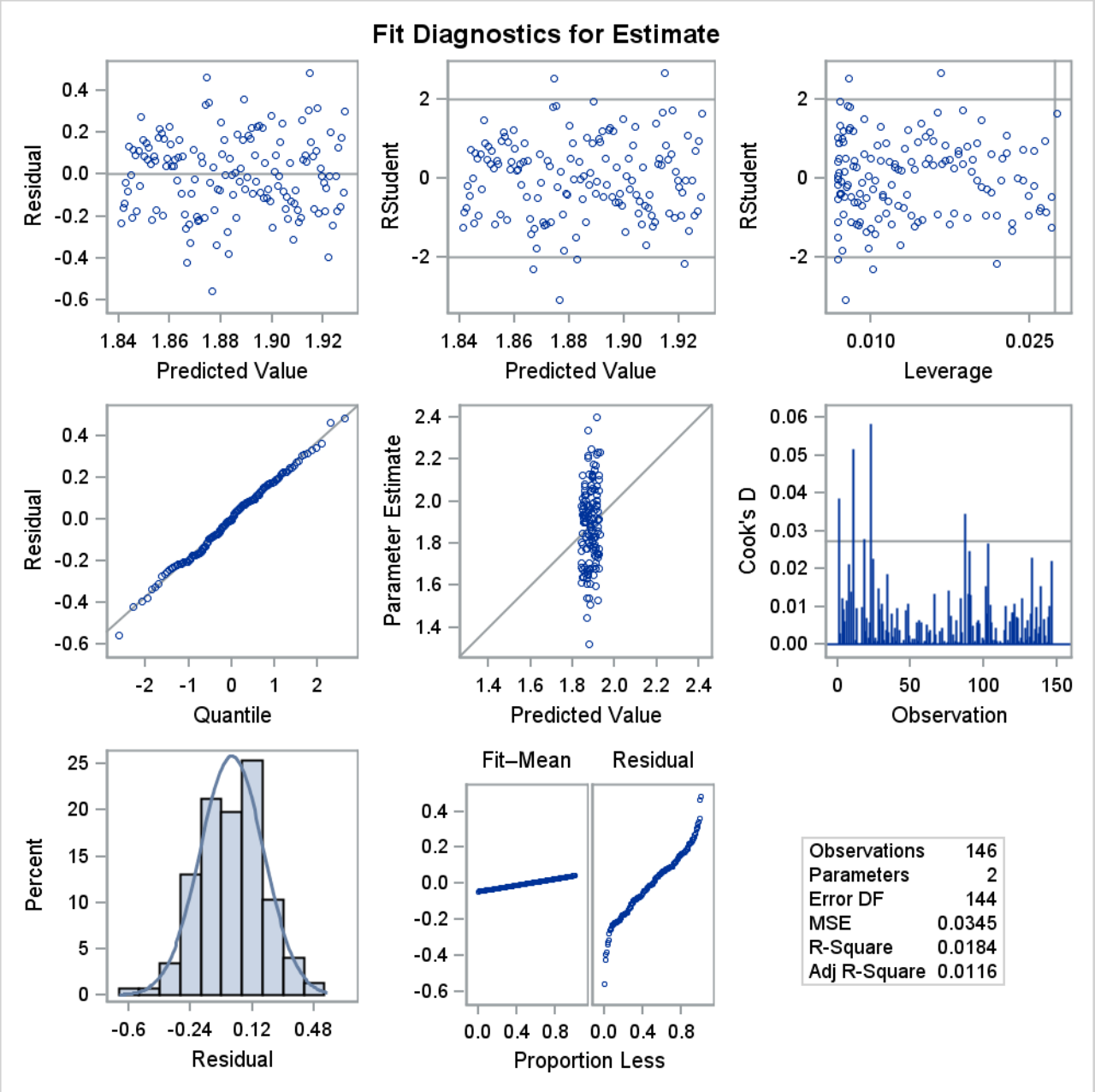
Root MSE	0.18583	R-Square	0.0184
Dependent Mean	1.88454	Adj R-Sq	0.0116
Coeff Var	9.86075		

Linear Regression of Pythagorean Exponent as a Function of Year (without 1878 outlier)

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate

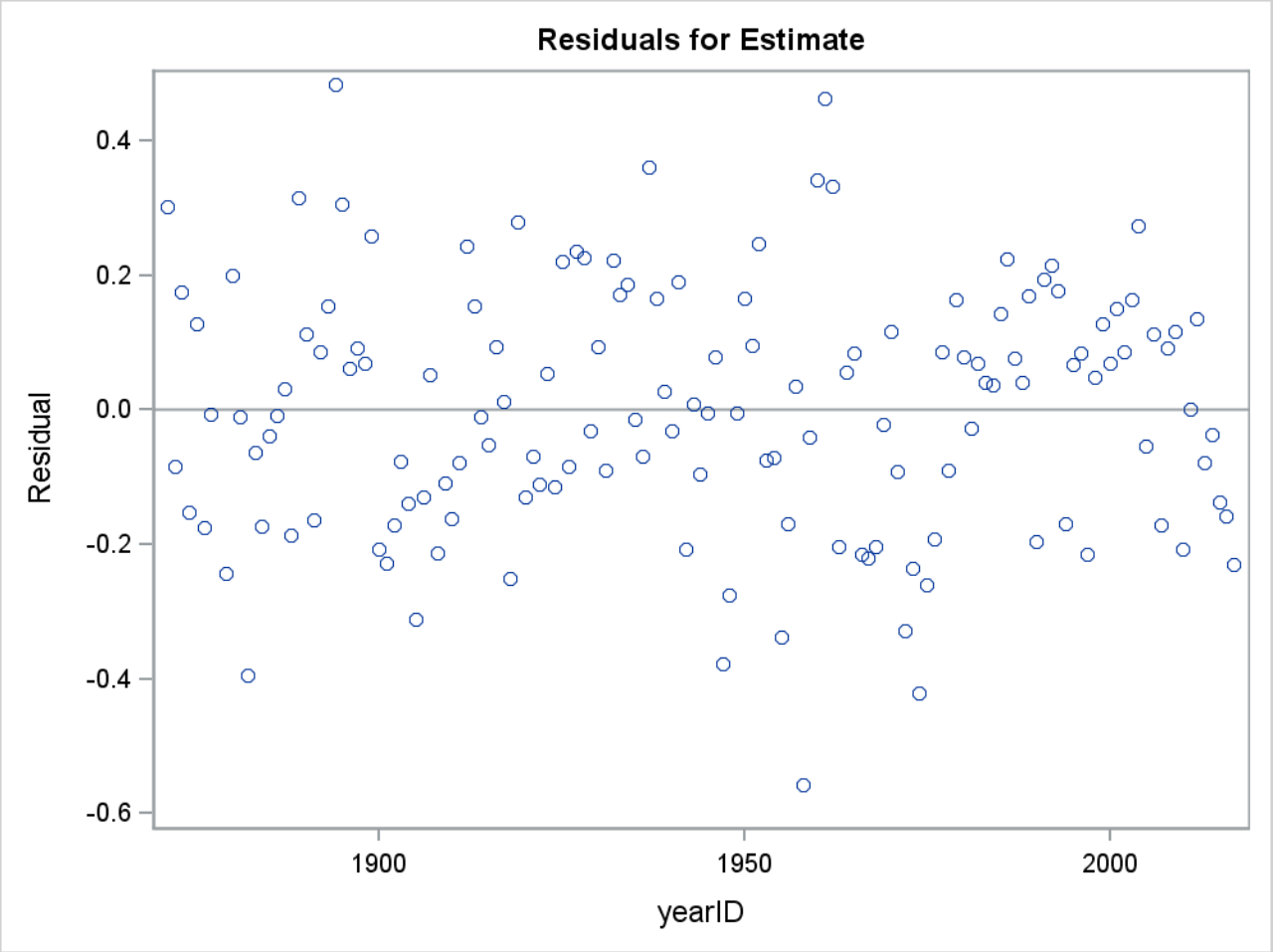
Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	95% Confidence Limits	
Intercept	Intercept	1	3.04871	0.70838	4.30	<.0001	1.64854	4.44889
yearID		1	-0.00059871	0.00036422	-1.64	0.1024	-0.00132	0.00012120



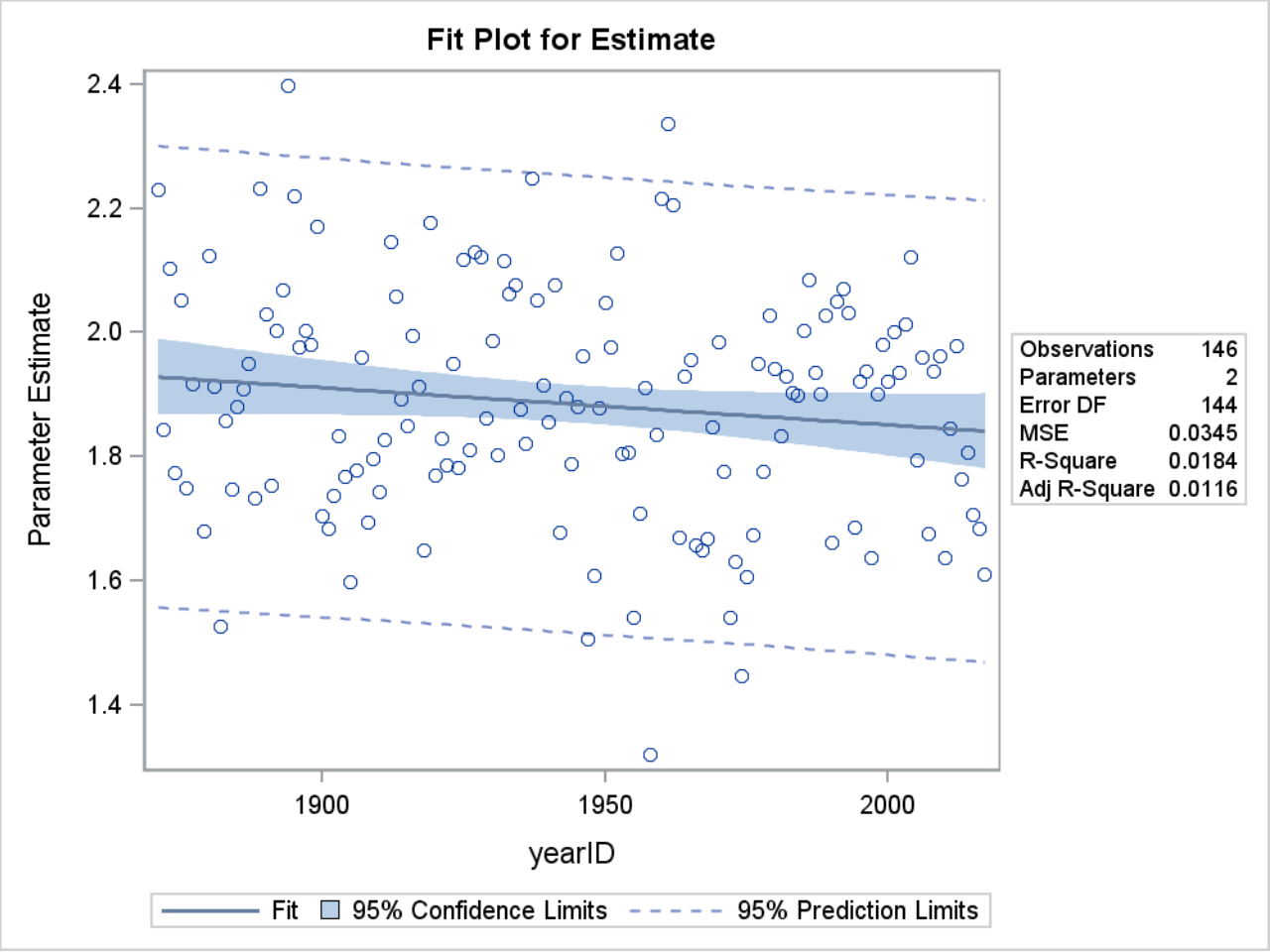
Linear Regression of Pythagorean Exponent as a Function of Year (without 1878 outlier)

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate



Linear Regression of Pythagorean Exponent as a Function of Year (without 1878 outlier)

The REG Procedure
Model: MODEL1
Dependent Variable: Estimate Parameter Estimate



When the 1878 outlier is removed, the slope is no longer significant. Safe to assume variation in exponent is due to error alone.

The REG Procedure
Model: MODEL1
Dependent Variable: log_wl

Number of Observations Read	2865
Number of Observations Used	2863
Number of Observations with Missing Values	2

Note: No intercept in model. R-Square is redefined.

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	79.01866	79.01866	27702.6	<.0001
Error	2862	8.16355	0.00285		
Uncorrected Total	2863	87.18221			

Root MSE	0.05341	**R-Square**	0.9064
Dependent Mean	-0.00363	**Adj R-Sq**	0.9063
Coeff Var	-1470.81390		

Linear Regression to get Overall Exponent

The REG Procedure
Model: MODEL1
Dependent Variable: log_wl

Parameter Estimates							
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	95% Confidence Limits	
log_rra	1	1.87752	0.01128	166.44	<.0001	1.85540	1.89964

Make note of the differences in the overall exponent estimation from the linear regression method and the following nonlinear method, which iteratively determines the exponent as it belongs in the formula.

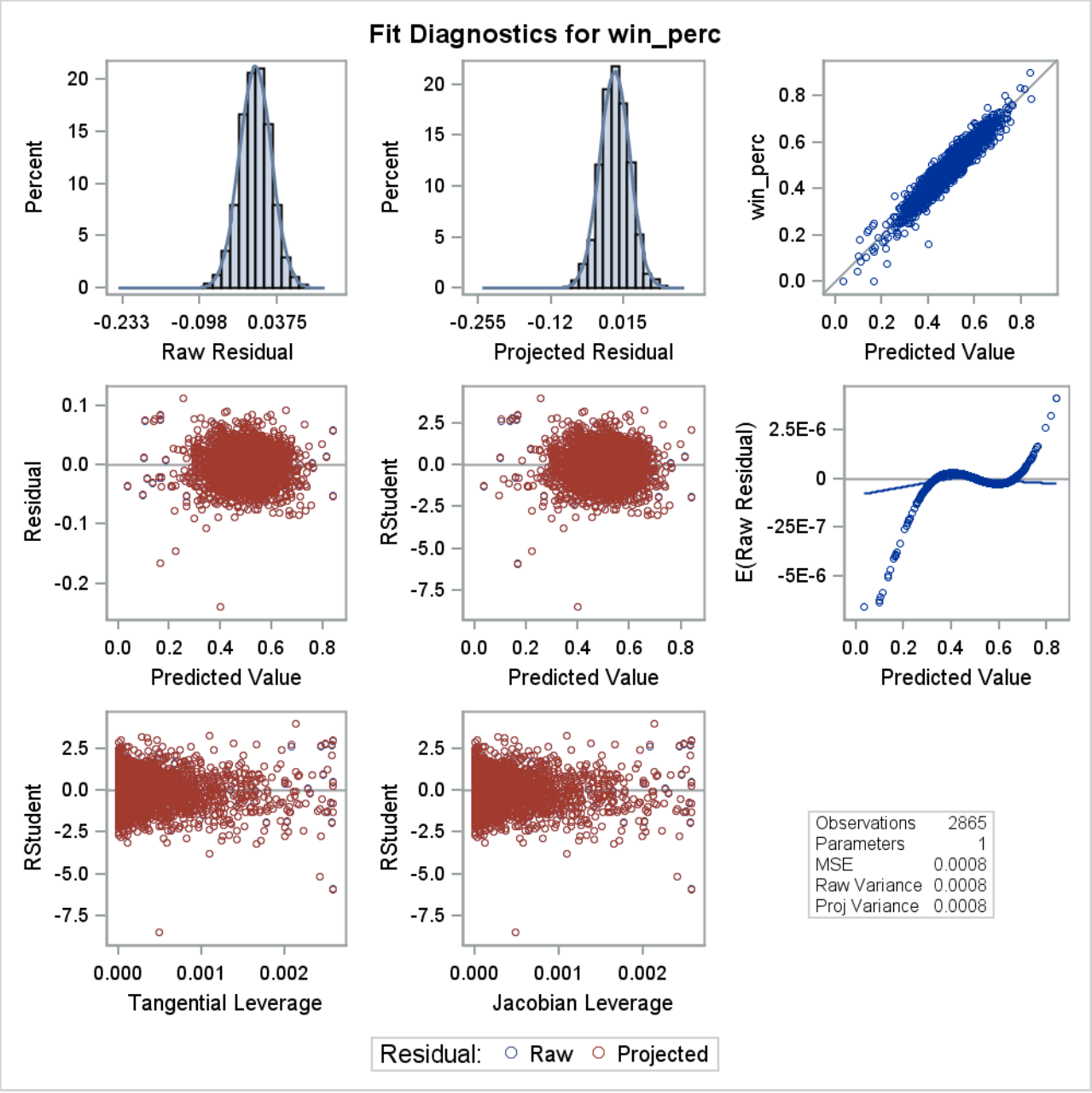
The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton

Iterative Phase		
Iter	x	Sum of Squares
0	2.0000	2.3651
1	1.8670	2.2699
2	1.8681	2.2699

NOTE: Convergence criterion met.

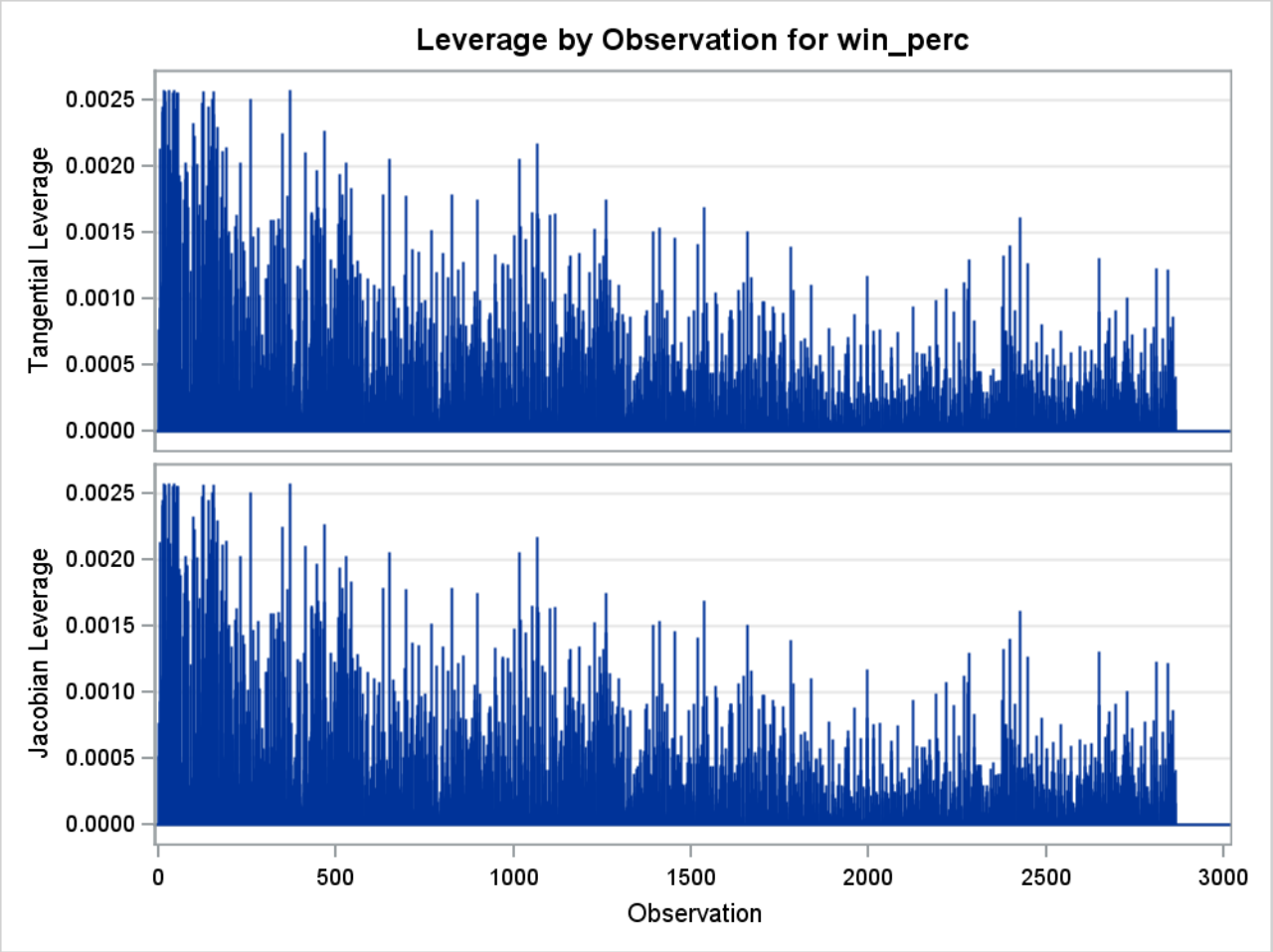
Estimating Pythagorean Exponent with Nonlinear Method

The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton



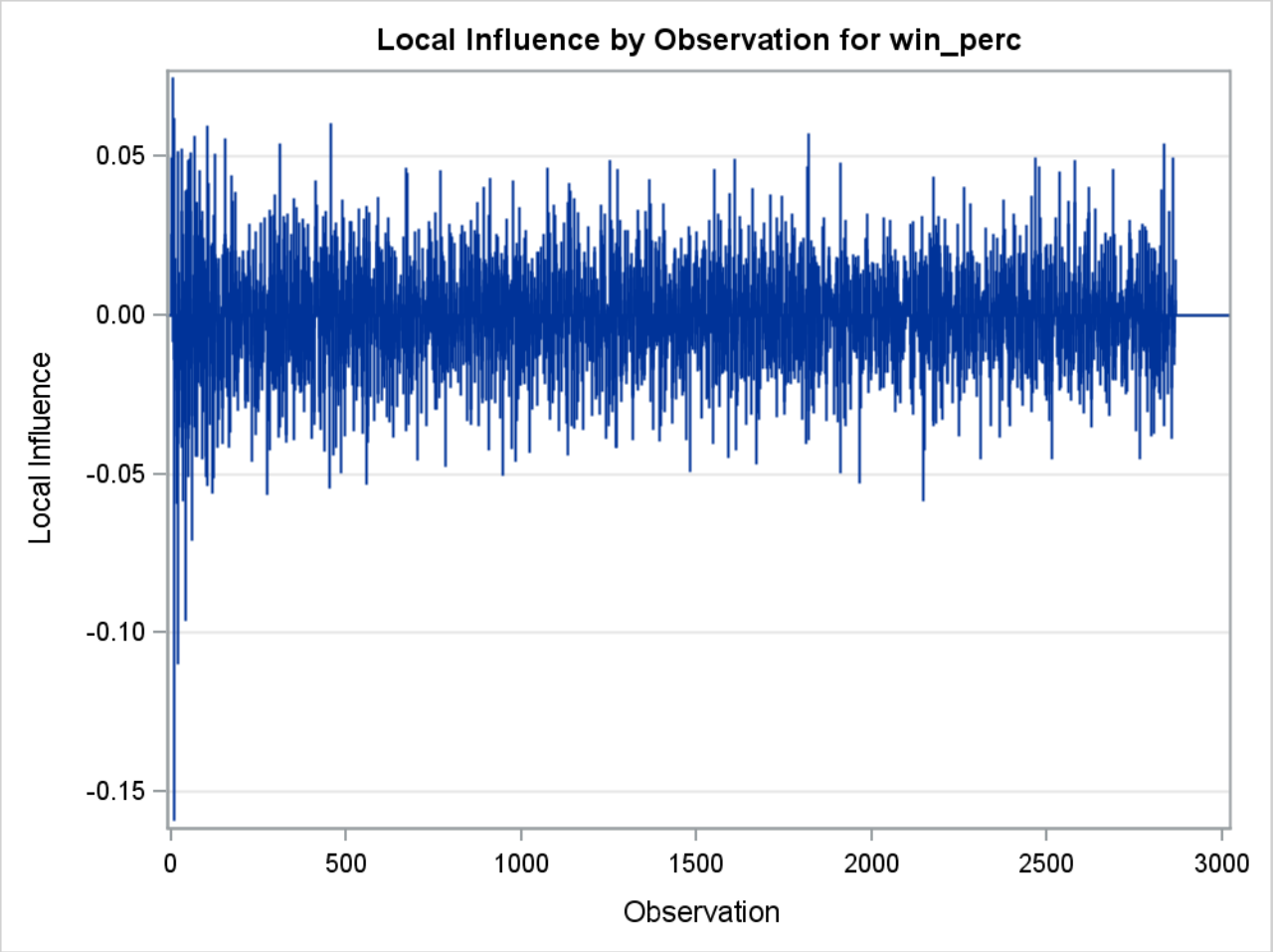
Estimating Pythagorean Exponent with Nonlinear Method

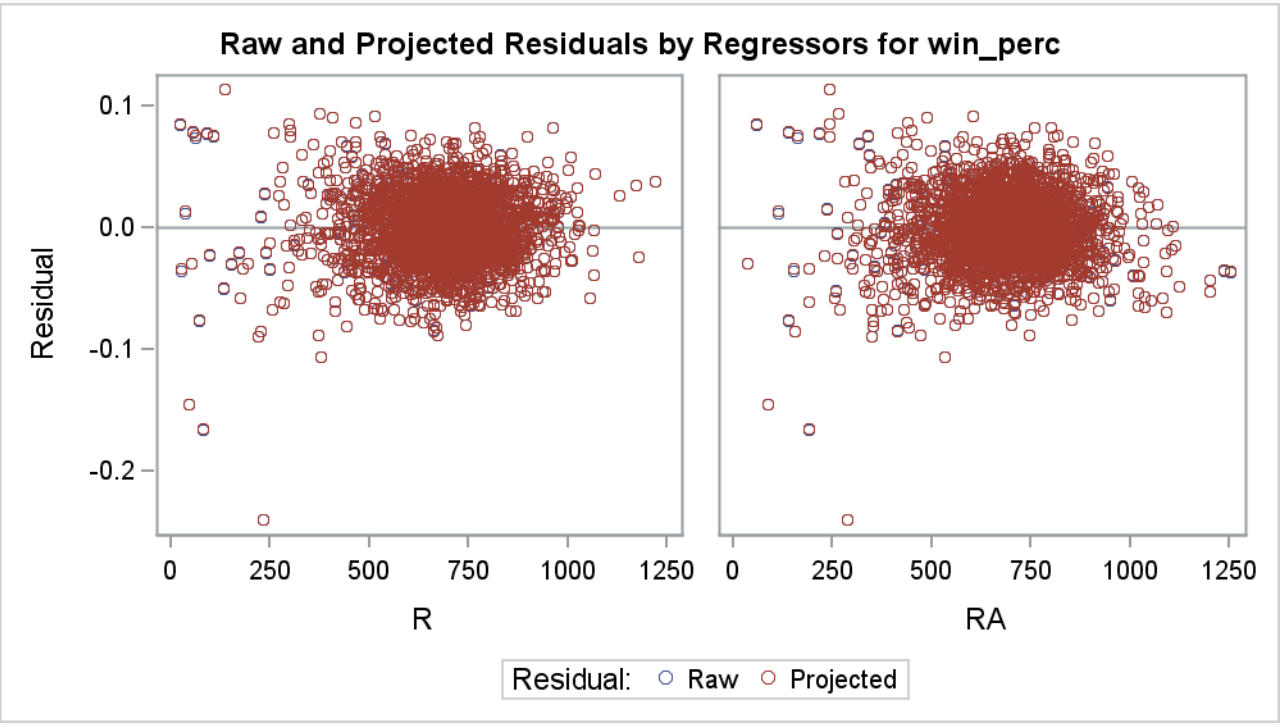
The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton



Estimating Pythagorean Exponent with Nonlinear Method

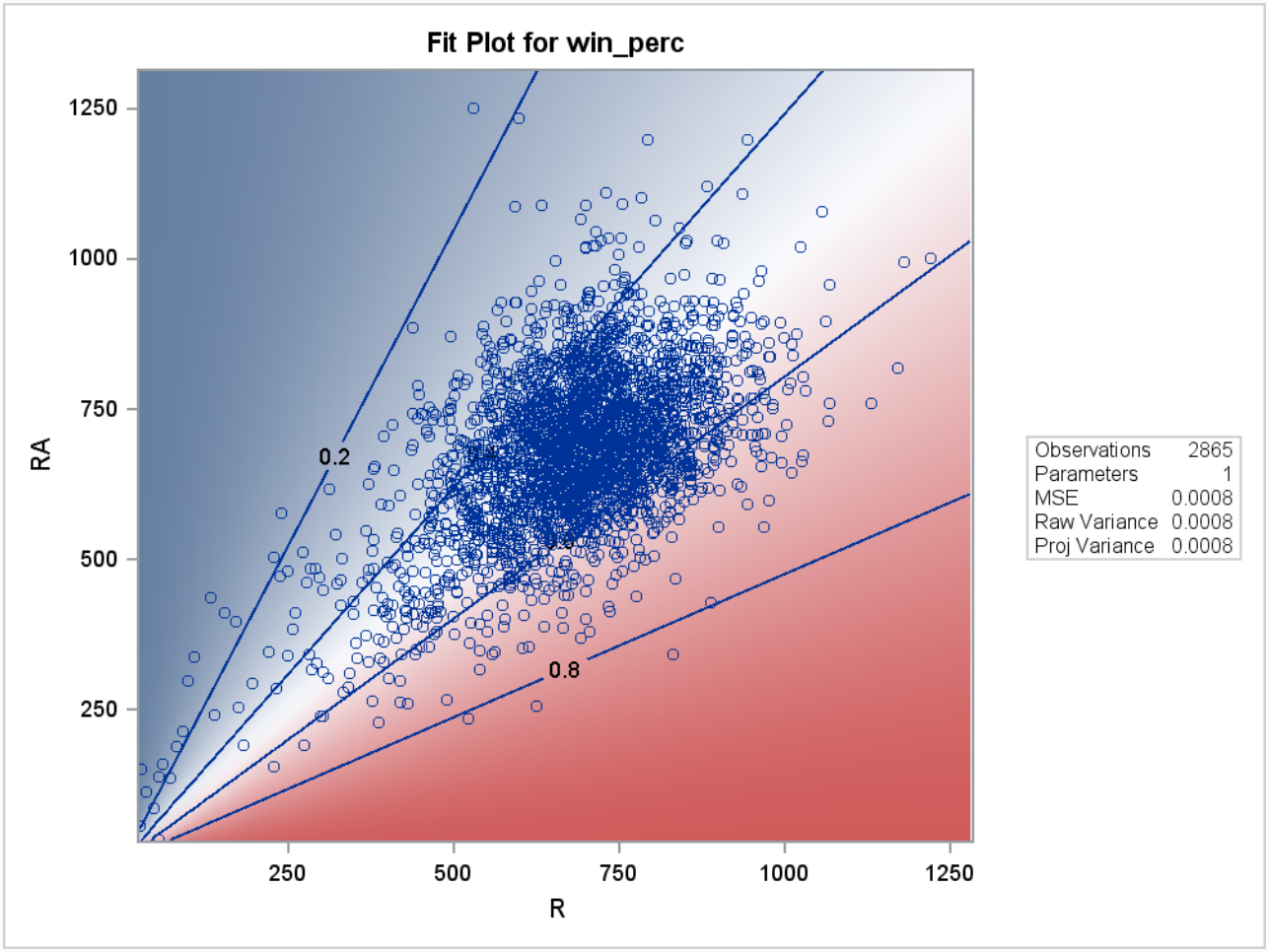
The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton





Estimating Pythagorean Exponent with Nonlinear Method

The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton



Estimation Summary	
Method	Gauss-Newton
Iterations	2
R	6.073E-7
PPC(x)	2.077E-7
RPC(x)	0.000588
Object	2.955E-6
Objective	2.269891
Observations Read	2865
Observations Used	2865
Observations Missing	0

Note: An intercept was not specified for this model.

Source	DF	Sum of Squares	Mean Square	F Value	Approx Pr > F
Model	1	734.9	734.9	927306	<.0001
Error	2864	2.2699	0.000793		
Uncorrected Total	2865	737.2			

Estimating Pythagorean Exponent with Nonlinear Method

The NLIN Procedure

Parameter	Estimate	Approx Std Error	Approximate 95% Confidence Limits		Skewness
x	1.8681	0.0119	1.8447	1.8915	0.00431

Approximate Correlation Matrix	
	x
x	1.0000000

The NLIN Procedure
Dependent Variable win_perc
Method: Gauss-Newton

Iterative Phase			
Iter	x	y	Sum of Squares
0	2.0000	2.0000	2.3651
1	1.8670	1.8674	2.2690
2	1.8681	1.8684	2.2690

NOTE: Convergence criterion met.

Estimation Summary	
Method	Gauss-Newton
Iterations	2
R	3.348E-6
PPC(y)	4.427E-7
RPC(y)	0.000567
Object	2.881E-6
Objective	2.26896
Observations Read	2865
Observations Used	2865
Observations Missing	0

Note: An intercept was not specified for this model.

Source	DF	Sum of Squares	Mean Square	F Value	Approx Pr > F
Model	2	734.9	367.5	463682	<.0001
Error	2863	2.2690	0.000793		
Uncorrected Total	2865	737.2			

Estimating Different Exponents Within the Formula

The NLIN Procedure

Parameter	Estimate	Approx Std Error	Approximate 95% Confidence Limits		Skewness
x	1.8681	0.0119	1.8447	1.8915	0.00430
y	1.8684	0.0119	1.8450	1.8919	0.00432

Approximate Correlation Matrix		
	x	y
x	1.0000000	0.9996106
y	0.9996106	1.0000000

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc

Number of Observations Read	30
Number of Observations Used	30

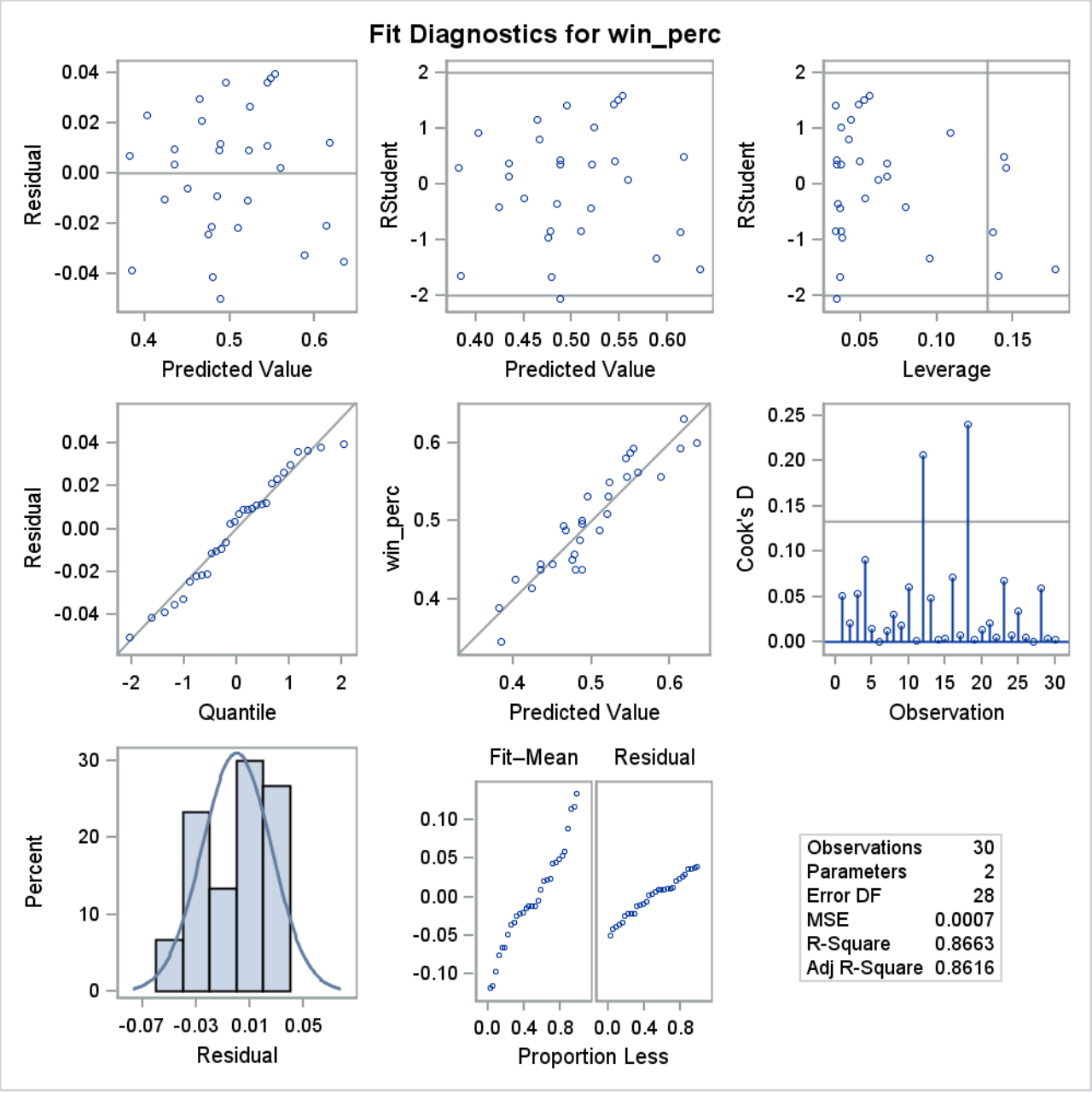
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.12477	0.12477	181.50	<.0001
Error	28	0.01925	0.00068744		
Corrected Total	29	0.14402			

Root MSE	0.02622	R-Square	0.8663
Dependent Mean	0.50000	Adj R-Sq	0.8616
Coeff Var	5.24379		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.50000	0.00479	104.45	<.0001
run_diff	1	0.00063902	0.00004743	13.47	<.0001

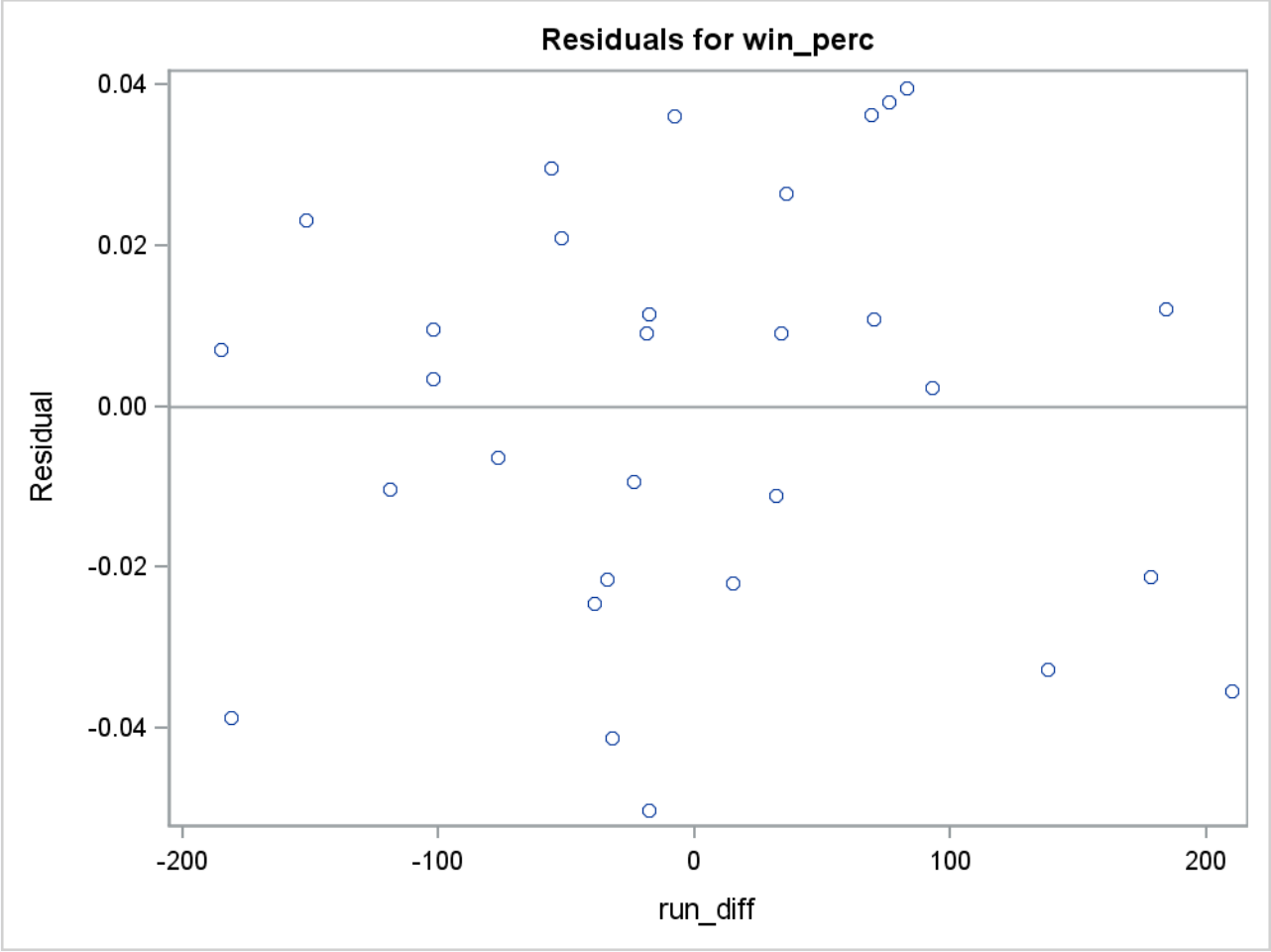
Run differential vs Winning Percent for 2011 (like in paper)

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc



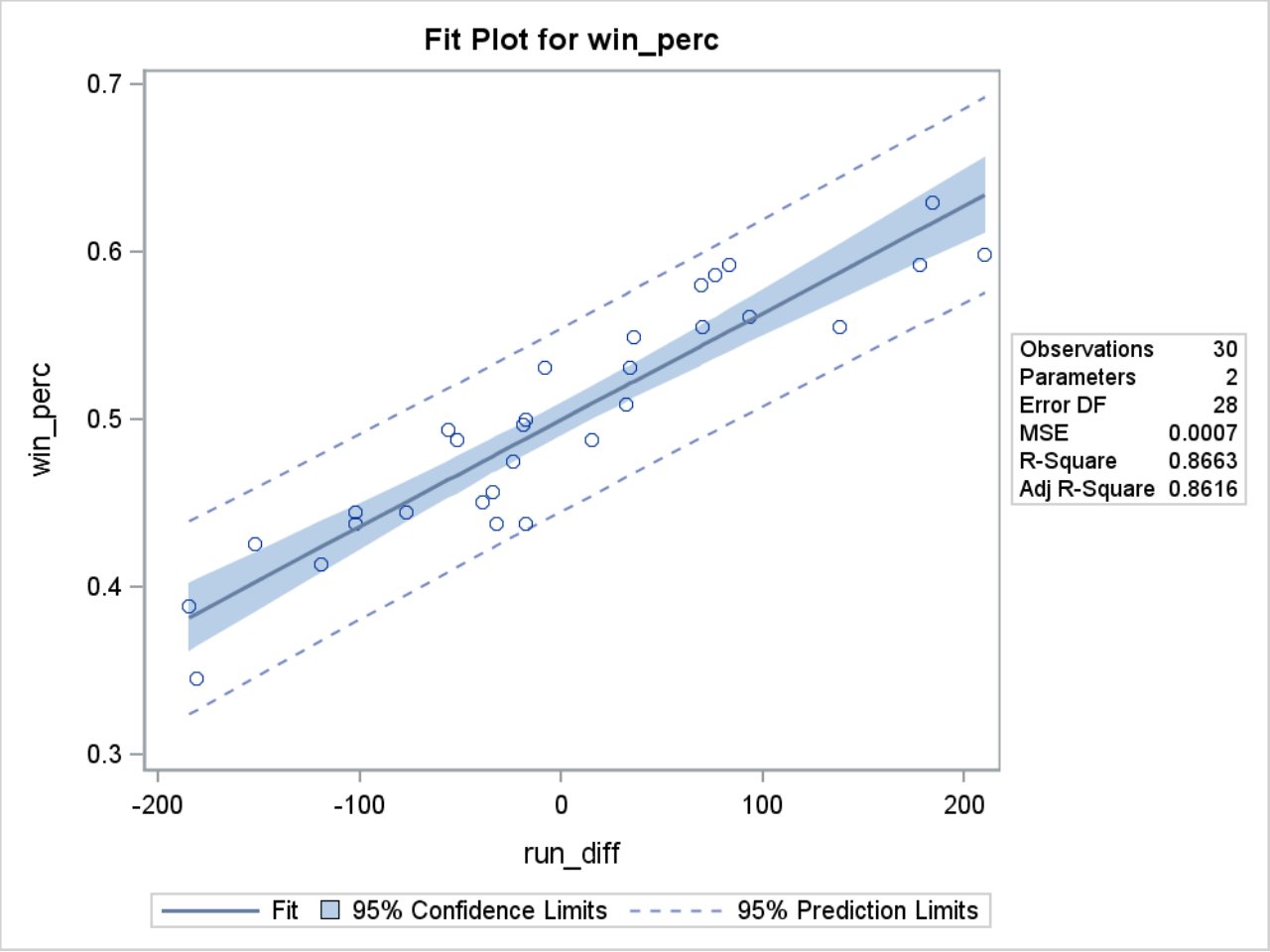
Run differential vs Winning Percent for 2011 (like in paper)

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc



Run differential vs Winning Percent for 2011 (like in paper)

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc



The REG Procedure
Model: MODEL1
Dependent Variable: win_perc

Number of Observations Read	2865
Number of Observations Used	2865

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	21.84497	21.84497	15849.9	<.0001
Error	2863	3.94589	0.00138		
Corrected Total	2864	25.79086			

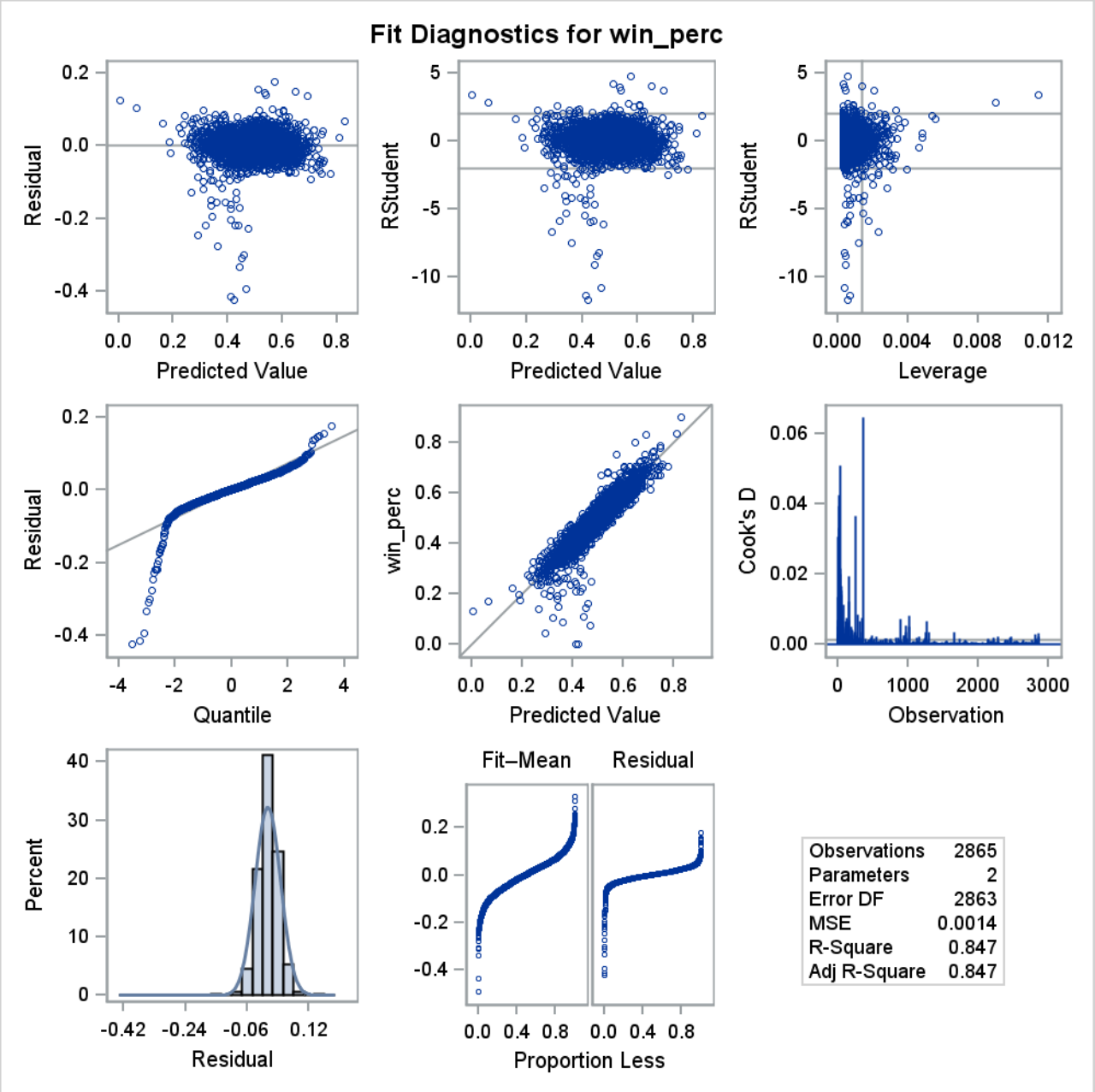
Root MSE	0.03712	R-Square	0.8470
Dependent Mean	0.49831	Adj R-Sq	0.8470
Coeff Var	7.45006		

Overall Linear Regression for Run Differential vs Winnning Percent

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc

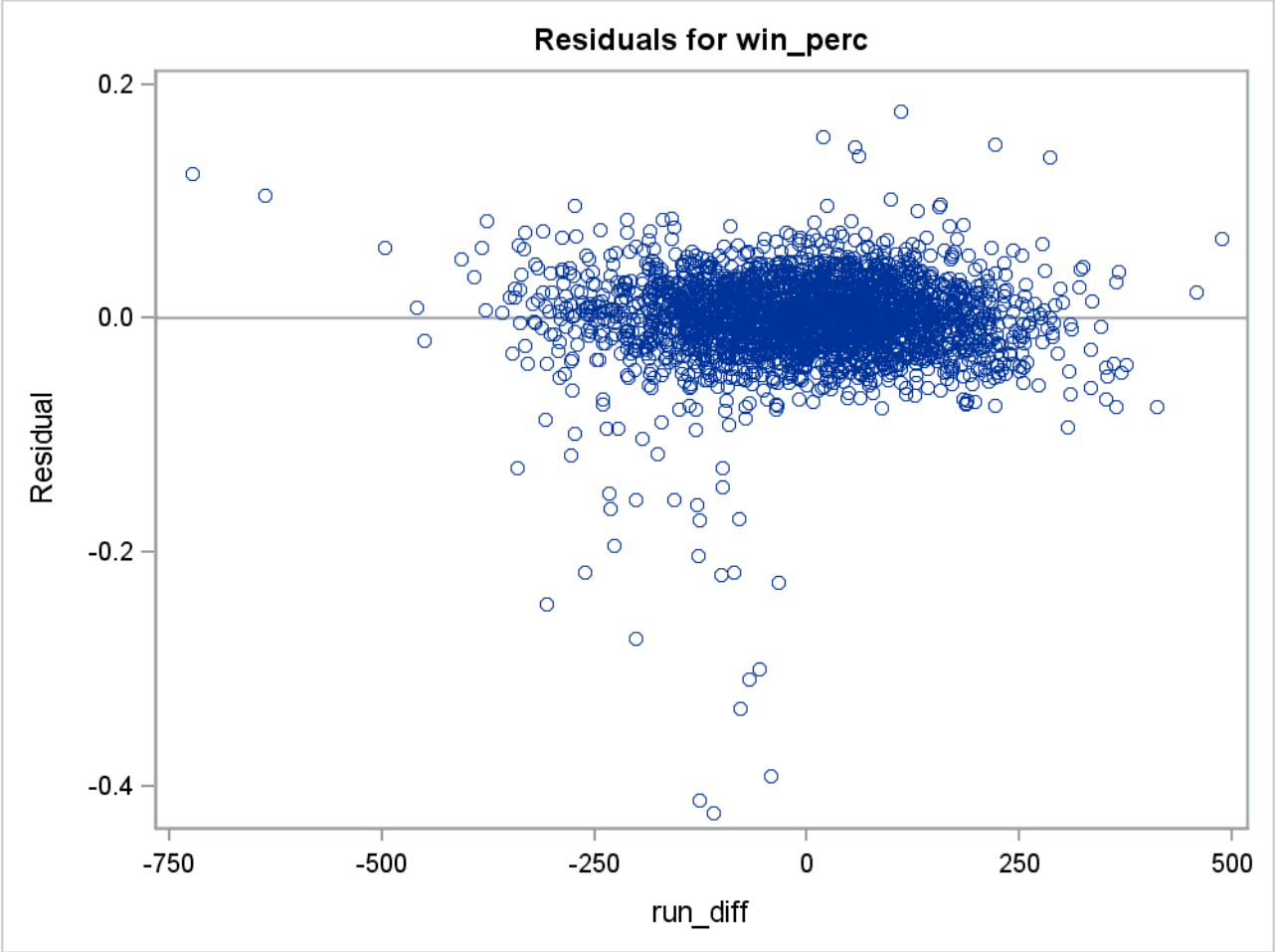
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.49831	0.00069358	718.46	<.0001
run_diff	1	0.00068040	0.00000540	125.90	<.0001



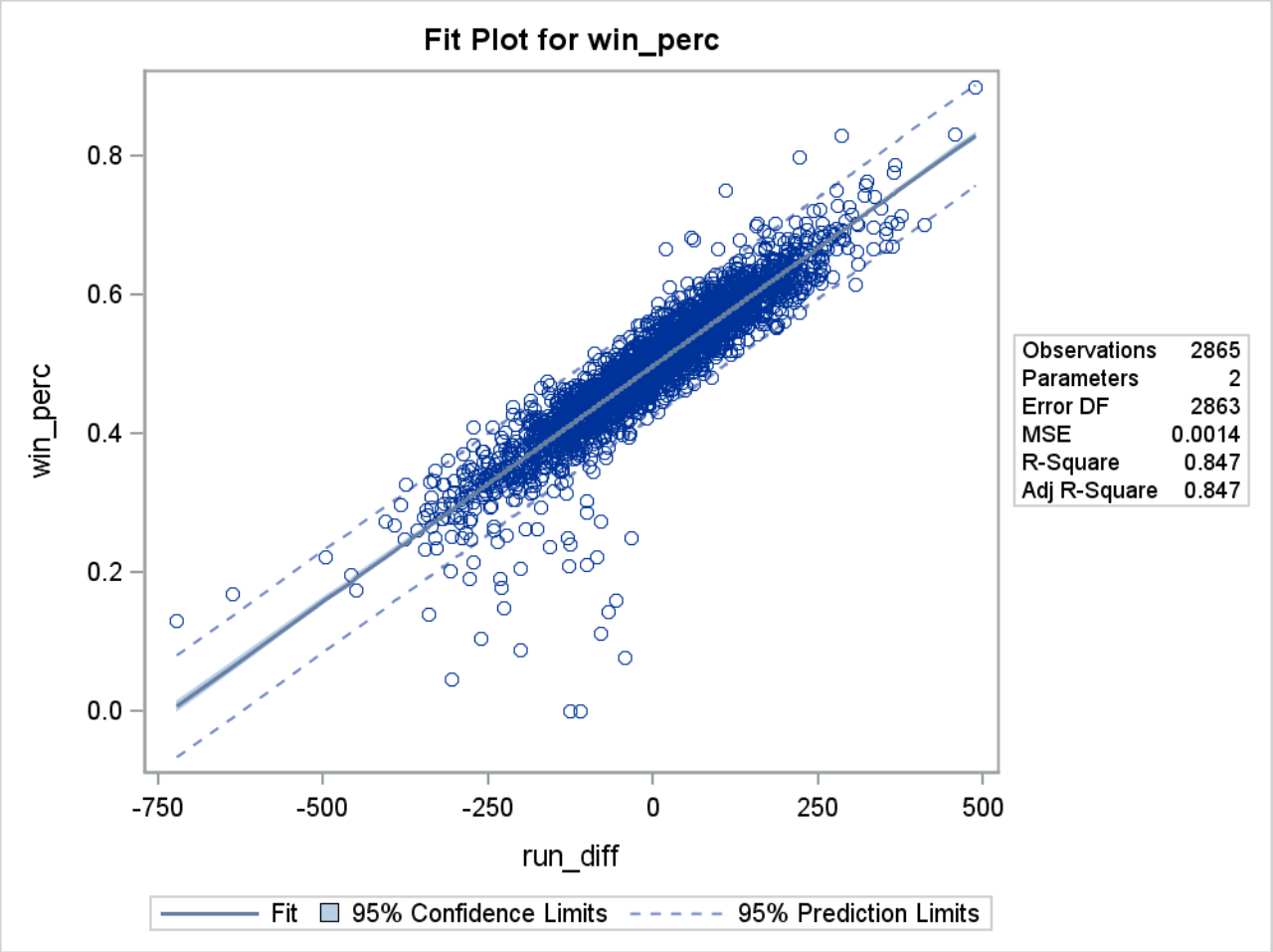
Overall Linear Regression for Run Differential vs Winnning Percent

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc



Overall Linear Regression for Run Differential vs Winnning Percent

The REG Procedure
Model: MODEL1
Dependent Variable: win_perc



The GLMSELECT Procedure

Data Set	WORK.TEAMS2
Dependent Variable	win_perc
Selection Method	Backward
Select Criterion	SBC
Stop Criterion	SBC
Effect Hierarchy Enforced	None

Number of Observations Read	1324
Number of Observations Used	1324

Dimensions	
Number of Effects	30
Number of Parameters	30

Allvars Model Winning Percent: Backward Selection

The GLMSELECT Procedure

Backward Selection Summary			
Step	Effect Removed	Number Effects In	SBC
0		30	-10242.827
	ops	29	-10242.827
1	HR	28	-10250.016
2	FP	27	-10257.087
3	DP	26	-10263.991
4	SO	25	-10270.752
5	SF	24	-10274.880
6	_3B	23	-10278.424
7	_2B	22	-10281.370
8	HA	21	-10284.654
9	HRA	20	-10286.913
10	slg	19	-10289.519
11	BBA	18	-10291.625
12	ER	17	-10293.600
13	SOA	16	-10294.178*
* Optimal Value of Criterion			

Note: Effects dropped at step 0 are redundant.

Selection stopped at a local minimum of the SBC criterion.

Stop Details				
Candidate For	Effect	Candidate SBC		Compare SBC
Removal	SB	-10290.924	>	-10294.178

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 13).

Effects:	Intercept R AB H BB SB CS RA ERA CG SHO SV IPouts E obp HBP

Allvars Model Winning Percent: Backward Selection

The GLMSELECT Procedure
Selected Model

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	15	5.82694	0.38846	996.46
Error	1308	0.50991	0.00038984	
Corrected Total	1323	6.33685		

Root MSE	0.01974
Dependent Mean	0.49998
R-Square	0.9195
Adj R-Sq	0.9186
AIC	-9051.19247
AICC	-9050.72386
SBC	-10294

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-0.603435	0.152845	-3.95
R	1	0.000557	0.000016312	34.17
AB	1	-0.000123	0.000031930	-3.86
H	1	-0.000381	0.000078006	-4.89
BB	1	-0.000447	0.000053163	-8.41
SB	1	0.000062647	0.000019467	3.22
CS	1	-0.000432	0.000056122	-7.70
RA	1	-0.000197	0.000049578	-3.97
ERA	1	-0.034335	0.007954	-4.32
CG	1	0.000777	0.000062568	12.42
SHO	1	0.000998	0.000189	5.28
SV	1	0.001895	0.000092529	20.48
IPouts	1	0.000273	0.000023704	11.52
E	1	-0.000233	0.000042267	-5.52
obp	1	3.747465	0.471492	7.95
HBP	1	-0.000401	0.000067992	-5.90

The GLMSELECT Procedure

Data Set	WORK.TEAMS2
Dependent Variable	win_perc
Selection Method	Forward
Select Criterion	SBC
Stop Criterion	SBC
Effect Hierarchy Enforced	None

Allvars Model Winning Percent: Forward Selection

The GLMSELECT Procedure

Number of Observations Read	1324
Number of Observations Used	1324

Dimensions	
Number of Effects	30
Number of Parameters	30

The GLMSELECT Procedure

Forward Selection Summary

Step	Effect Entered	Number Effects In	SBC
0	Intercept	1	-7065.661
1	ERA	2	-7466.297
2	ops	3	-9338.861
3	SV	4	-9516.429
4	CG	5	-9623.627
5	RA	6	-9749.105
6	R	7	-10078.835
7	SHO	8	-10103.723
8	AB	9	-10130.325
9	IPouts	10	-10190.141
10	H	11	-10207.057
11	CS	12	-10242.787
12	FP	13	-10254.971
13	SB	14	-10264.119
14	SF	15	-10270.837
15	BB	16	-10274.206
16	slg	17	-10275.558
17	HBP	18	-10289.840*

* Optimal Value of Criterion

Selection stopped at a local minimum of the SBC criterion.

Stop Details

Candidate For	Effect	Candidate SBC		Compare SBC
Entry	HR	-10288.033	>	-10289.840

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 17).

Effects:	Intercept R AB H BB SB CS RA ERA CG SHO SV IPouts FP slg ops HBP SF

Allvars Model Winning Percent: Forward Selection

The GLMSELECT Procedure
Selected Model

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	17	5.83079	0.34299	885.15
Error	1306	0.50606	0.00038749	
Corrected Total	1323	6.33685		

Root MSE	0.01968
Dependent Mean	0.49998
R-Square	0.9201
Adj R-Sq	0.9191
AIC	-9057.23177
AICC	-9056.64895
SBC	-10290

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-1.695278	0.299255	-5.66
R	1	0.000511	0.000025309	20.20
AB	1	-0.000169	0.000034868	-4.86
H	1	-0.000245	0.000086138	-2.85
BB	1	-0.000350	0.000058349	-6.00
SB	1	0.000079359	0.000019884	3.99
CS	1	-0.000439	0.000056067	-7.82
RA	1	-0.000219	0.000048951	-4.48
ERA	1	-0.030674	0.007873	-3.90
CG	1	0.000791	0.000062534	12.65
SHO	1	0.001006	0.000188	5.34
SV	1	0.001886	0.000092337	20.42
IPouts	1	0.000280	0.000024405	11.47
FP	1	1.302453	0.266872	4.88
slg	1	-2.838739	0.522313	-5.43
ops	1	2.976609	0.508739	5.85
HBP	1	-0.000322	0.000069761	-4.62
SF	1	-0.000156	0.000080262	-1.94

The GLMSELECT Procedure

Data Set	WORK.TEAMS2
Dependent Variable	win_perc
Selection Method	Stepwise
Select Criterion	SBC
Stop Criterion	SBC
Effect Hierarchy Enforced	None

Allvars Model Winning Percent: Stepwise Selection

The GLMSELECT Procedure

Number of Observations Read	1324
Number of Observations Used	1324

Dimensions	
Number of Effects	30
Number of Parameters	30

The GLMSELECT Procedure

Stepwise Selection Summary

Step	Effect Entered	Effect Removed	Number Effects In	SBC
0	Intercept		1	-7065.661
1	ERA		2	-7466.297
2	ops		3	-9338.861
3	SV		4	-9516.429
4	CG		5	-9623.627
5	RA		6	-9749.105
6	R		7	-10078.835
7		ERA	6	-10085.974
8	SHO		7	-10108.175
9	AB		8	-10128.435
10	IPouts		9	-10197.322
11	H		10	-10213.924
12	CS		11	-10249.969
13	SB		12	-10258.764
14	SF		13	-10265.696
15	FP		14	-10269.737
16	BB		15	-10272.108
17	ERA		16	-10274.206
18	obp		17	-10275.558
19		H	16	-10281.674
20		SF	15	-10281.746
21	HBP		16	-10285.746
22	H		17	-10293.218
23	HR		18	-10293.550
24		ops	17	-10300.000*

* Optimal Value of Criterion

Selection stopped at a local minimum of the SBC criterion.

Stop Details

Candidate For	Effect	Candidate SBC		Compare SBC
Entry	SOA	-10297.400	>	-10300.000
Removal	H	-10294.099	>	-10300.000

Allvars Model Winning Percent: Stepwise Selection

The GLMSELECT Procedure
Selected Model

The GLMSELECT Procedure
Selected Model

The selected model is the model at the last step (Step 24).

Effects:	Intercept R AB H HR BB SB CS RA ERA CG SHO SV IPouts FP obp HBP

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	16	5.83192	0.36450	943.49
Error	1307	0.50493	0.00038632	
Corrected Total	1323	6.33685		

Root MSE	0.01966
Dependent Mean	0.49998
R-Square	0.9203
Adj R-Sq	0.9193
AIC	-9062.20339
AICC	-9061.67925
SBC	-10300

Parameter Estimates				
Parameter	DF	Estimate	Standard Error	t Value
Intercept	1	-1.784634	0.291921	-6.11
R	1	0.000491	0.000023817	20.60
AB	1	-0.000149	0.000032214	-4.62
H	1	-0.000288	0.000079975	-3.60
HR	1	0.000112	0.000028779	3.89
BB	1	-0.000398	0.000053659	-7.42
SB	1	0.000084218	0.000020043	4.20
CS	1	-0.000432	0.000055774	-7.75
RA	1	-0.000219	0.000048818	-4.49
ERA	1	-0.031229	0.007830	-3.99
CG	1	0.000773	0.000061887	12.48
SHO	1	0.001005	0.000188	5.34
SV	1	0.001869	0.000092390	20.23
IPouts	1	0.000272	0.000023880	11.41
FP	1	1.297296	0.266022	4.88
obp	1	3.437467	0.471019	7.30
HBP	1	-0.000362	0.000067530	-5.36

Least Squares Regression

The GLMSELECT Procedure

Data Set	WORK.TRAIN
Validation Data Set	WORK.VALID
Dependent Variable	win_perc
Selection Method	None

Observation Profile for Analysis Data	
Number of Observations Read	885
Number of Observations Used	885
Number of Observations Used for Training	885

Observation Profile for Validation Data	
Number of Observations Read	439
Number of Observations Used	439

Dimensions	
Number of Effects	30
Number of Parameters	30

The GLMSELECT Procedure

Least Squares Summary

Step	Effect Entered	Number Effects In	Adjusted R-Square	AIC	BIC	SBC	ASE	Validation ASE	Pr > F
0	Intercept	1	0.0000	-3811.8994	-4700.4492	-4694.1138	0.0049	0.0045	1.0000
1	R	2	0.2260	-4037.6669	-4927.8898	-4915.0957	0.0038	0.0038	<.0001
2	AB	3	0.2939	-4117.8555	-5009.7863	-4990.4988	0.0035	0.0034	<.0001
3	H	4	0.2951	-4118.4480	-5012.1565	-4986.3057	0.0035	0.0035	0.1083
4	_2B	5	0.3130	-4140.2236	-5035.6724	-5003.2957	0.0034	0.0034	<.0001
5	_3B	6	0.3128	-4138.9127	-5036.1349	-4997.1992	0.0034	0.0034	0.4082
6	HR	7	0.3210	-4148.5200	-5047.4906	-5002.0209	0.0033	0.0033	0.0007
7	BB	8	0.3273	-4155.7452	-5056.4641	-5004.4605	0.0033	0.0034	0.0025
8	SO	9	0.3280	-4155.6877	-5058.1704	-4999.6174	0.0033	0.0033	0.1657
9	SB	10	0.3406	-4171.4636	-5075.6597	-5010.6077	0.0032	0.0034	<.0001
10	CS	11	0.3577	-4193.7560	-5099.6324	-5028.1145	0.0031	0.0033	<.0001
11	RA	12	0.8675	-5589.7874	-6485.0001	-6419.3603	0.0006	0.0006	<.0001
12	ER	13	0.8674	-5588.1767	-6484.2051	-6412.9641	0.0006	0.0006	0.5358
13	ERA	14	0.8740	-5632.6002	-6528.5128	-6452.6019	0.0006	0.0006	<.0001
14	CG	15	0.8741	-5631.6800	-6528.3277	-6446.8962	0.0006	0.0006	0.3030
15	SHO	16	0.8755	-5641.2105	-6538.3426	-6451.6411	0.0006	0.0006	0.0008
16	SV	17	0.9113	-5940.2863	-6829.2392	-6745.9313	0.0004	0.0005	<.0001
17	IPouts	18	0.9191	-6020.0596	-6906.1360	-6820.9190*	0.0004	0.0004	<.0001
18	HA	19	0.9190	-6018.3224	-6904.4475	-6814.3962	0.0004	0.0004	0.6122
19	HRA	20	0.9190	-6016.9712	-6903.1270	-6808.2595	0.0004	0.0004	0.4260
20	BBA	21	0.9196	-6022.7318	-6908.5851	-6809.2344	0.0004	0.0004	0.0059

* Optimal Value of Criterion

Least Squares Regression

The GLMSELECT Procedure

Least Squares Summary

Step	Effect Entered	Number Effects In	Adjusted R-Square	AIC	BIC	SBC	ASE	Validation ASE	Pr > F
21	SOA	22	0.9198	-6024.0238	-6909.7568	-6805.7409	0.0004	0.0004	0.0733
22	E	23	0.9206	-6032.2095	-6917.4517	-6809.1410	0.0004	0.0004	0.0016
23	DP	24	0.9206	-6030.9128	-6916.1276	-6803.0587	0.0004	0.0004	0.4083
24	FP	25	0.9208	-6032.5156	-6917.5363	-6799.8759	0.0004	0.0004	0.0614
25	obp	26	0.9216	-6040.0732	-6924.5305	-6802.6479	0.0004	0.0004	0.0023
26	slg	27	0.9227	-6051.6700	-6935.2628	-6809.4591	0.0004	0.0004	0.0003
27	ops	28	0.9227	-6051.6700	-6935.2628	-6809.4591	0.0004	0.0004	.
28	HBP	29	0.9231*	-6055.9949*	-6939.1242*	-6808.9984	0.0004	0.0004	0.0134
29	SF	30	0.9231	-6054.3668	-6937.4041	-6802.5847	0.0004	0.0004*	0.5488

* Optimal Value of Criterion

Least Squares Regression

The GLMSELECT Procedure
Least Squares Model (No Selection)

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	28	4.04075	0.14431	379.86	<.0001
Error	856	0.32520	0.00037991		
Corrected Total	884	4.36595			

Root MSE	0.01949
Dependent Mean	0.49869
R-Square	0.9255
Adj R-Sq	0.9231
AIC	-6054.36676
AICC	-6052.18878
BIC	-6937.40411
C(p)	29.00000
SBC	-6802.58472
ASE (Train)	0.00036746
ASE (Validate)	0.00040310

Parameter Estimates					
Parameter	DF	Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-1.749789	1.649249	-1.06	0.2890
R	1	0.000480	0.000031845	15.09	<.0001
AB	1	-0.000201	0.000042433	-4.74	<.0001
H	1	-0.000150	0.000111	-1.35	0.1770
_2B	1	-0.000154	0.000113	-1.37	0.1722
_3B	1	-0.000300	0.000226	-1.32	0.1863
HR	1	-0.000257	0.000325	-0.79	0.4289
BB	1	-0.000239	0.000117	-2.05	0.0409
SO	1	0.000003398	0.000007732	0.44	0.6604
SB	1	0.000092731	0.000024928	3.72	0.0002
CS	1	-0.000458	0.000069732	-6.57	<.0001
RA	1	-0.000224	0.000071724	-3.13	0.0018
ER	1	0.000311	0.000140	2.22	0.0267
ERA	1	-0.065179	0.019380	-3.36	0.0008
CG	1	0.000861	0.000093224	9.23	<.0001
SHO	1	0.000742	0.000230	3.23	0.0013
SV	1	0.002031	0.000116	17.47	<.0001
IPouts	1	0.000263	0.000035353	7.45	<.0001
HA	1	-0.000027869	0.000021193	-1.32	0.1889
HRA	1	-0.000098413	0.000044950	-2.19	0.0288
BBA	1	-0.000037834	0.000017021	-2.22	0.0265
SOA	1	0.000008950	0.000007801	1.15	0.2515

Least Squares Regression

The GLMSELECT Procedure
Least Squares Model (No Selection)

Parameter Estimates					
Parameter	DF	Estimate	Standard Error	t Value	Pr > |t|
E	1	0.000065363	0.000271	0.24	0.8098
DP	1	-0.000046460	0.000045909	-1.01	0.3118
FP	1	1.597554	1.700963	0.94	0.3479
obp	1	2.046551	1.046988	1.95	0.0509
slg	1	0.689840	0.589739	1.17	0.2424
ops	0	0	.	.	.
HBP	1	-0.000255	0.000129	-1.98	0.0480
SF	1	-0.000066788	0.000111	-0.60	0.5488

The GLMSELECT Procedure

Data Set	WORK.TRAIN
Validation Data Set	WORK.VALID
Dependent Variable	win_perc
Selection Method	ELASTICNET
Stop Criterion	SBC
Choose Criterion	Validation ASE
Effect Hierarchy Enforced	None

Observation Profile for Analysis Data	
Number of Observations Read	885
Number of Observations Used	885
Number of Observations Used for Training	885

Observation Profile for Validation Data	
Number of Observations Read	439
Number of Observations Used	439

Dimensions	
Number of Effects	30
Number of Parameters	30

Elastic Net

The GLMSELECT Procedure

Elastic Net Selection Summary

Step	Effect Entered	Effect Removed	Number Effects In	Adjusted R-Square	AIC	BIC	SBC	ASE	Validation ASE	Pr > F
0	Intercept		1	0.0000	-3811.8994	-4700.4492	-4694.1138	0.0049	0.0045	1.0000
1	obp		2	0.0366	-3843.8857	-4734.2583	-4721.3145	0.0047	0.0044	<.0001
2	ERA		3	0.0706	-3874.6741	-4766.8574	-4747.3173	0.0046	0.0042	<.0001
3	SV		4	0.3326	-4166.7972	-5060.4346	-5034.6549	0.0033	0.0031	<.0001
4	RA		5	0.4371	-4316.4090	-5211.5229	-5179.4810	0.0028	0.0026	<.0001
5	ops		6	0.5860	-4587.4647	-5483.5413	-5445.7511	0.0020	0.0020	<.0001
6	R		7	0.8347	-5398.8208	-6291.8185	-6252.3217	0.0008	0.0008	<.0001
7	SHO		8	0.8730	-5631.1685	-6522.6916	-6479.8838	0.0006	0.0006	<.0001
8	CG		9	0.8923	-5775.8037	-6665.9748	-6619.7334	0.0005	0.0005	<.0001
9	BBA		10	0.8983	-5825.5551	-6715.3701	-6664.6992	0.0005	0.0005	<.0001
10	HR		11	0.9013	-5851.5765	-6741.2988	-6685.9351	0.0005	0.0005	<.0001
11	SB		12	0.9032*	-5867.2739*	-6757.0218*	-6696.8468*	0.0005	0.0005*	<.0001

* Optimal Value of Criterion

Selection stopped at a local minimum of the SBC criterion.

Stop Details

Candidate For	Effect	Candidate SBC		Compare SBC
Entry	DP	-6692.5673	>	-6696.8468

The GLMSELECT Procedure
Selected Model

The selected model, based on Validation ASE, is the model at Step 11.

Effects:	Intercept R HR SB RA ERA CG SHO SV BBA obp ops

Elastic Net

The GLMSELECT Procedure
Selected Model

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	11	3.94846	0.35895	750.58
Error	873	0.41750	0.00047823	
Corrected Total	884	4.36595		

Root MSE	0.02187
Dependent Mean	0.49869
R-Square	0.9044
Adj R-Sq	0.9032
AIC	-5867.27389
AICC	-5866.85598
BIC	-6757.02181
C(p)	237.93063
SBC	-6696.84684
ASE (Train)	0.00047175
ASE (Validate)	0.00047475

Parameter Estimates		
Parameter	DF	Estimate
Intercept	1	0.164321
R	1	0.000354
HR	1	0.000054406
SB	1	0.000010531
RA	1	-0.000474
ERA	1	-0.002399
CG	1	0.000565
SHO	1	0.000820
SV	1	0.001917
BBA	1	-0.000010128
obp	1	0.565682
ops	1	0.208061

The GLMSELECT Procedure

Data Set	WORK.TRAIN
Validation Data Set	WORK.VALID
Dependent Variable	win_perc
Selection Method	LASSO
Stop Criterion	SBC
Choose Criterion	Validation ASE
Effect Hierarchy Enforced	None

Lasso

The GLMSELECT Procedure

Observation Profile for Analysis Data	
Number of Observations Read	885
Number of Observations Used	885
Number of Observations Used for Training	885

Observation Profile for Validation Data	
Number of Observations Read	439
Number of Observations Used	439

Dimensions	
Number of Effects	30
Number of Parameters	30

The GLMSELECT Procedure

LASSO Selection Summary

Step	Effect Entered	Effect Removed	Number Effects In	Adjusted R-Square	AIC	BIC	SBC	ASE	Validation ASE	Pr > F
0	Intercept		1	0.0000	-3811.8994	-4700.4492	-4694.1138	0.0049	0.0045	1.0000
1	obp		2	0.0366	-3843.8857	-4734.2583	-4721.3145	0.0047	0.0044	<.0001
2	ERA		3	0.0706	-3874.6741	-4766.8574	-4747.3173	0.0046	0.0042	<.0001
3	SV		4	0.3326	-4166.7972	-5060.4346	-5034.6549	0.0033	0.0031	<.0001
4	RA		5	0.4371	-4316.4090	-5211.5229	-5179.4810	0.0028	0.0026	<.0001
5	ops		6	0.5860	-4587.4647	-5483.5413	-5445.7511	0.0020	0.0020	<.0001
6	R		7	0.8347	-5398.8208	-6291.8185	-6252.3217	0.0008	0.0008	<.0001
7	SHO		8	0.8730	-5631.1685	-6522.6916	-6479.8838	0.0006	0.0006	<.0001
8	CG		9	0.8923	-5775.8037	-6665.9748	-6619.7334	0.0005	0.0005	<.0001
9	BBA		10	0.8983	-5825.5551	-6715.3701	-6664.6992	0.0005	0.0005	<.0001
10	HR		11	0.9013	-5851.5765	-6741.2988	-6685.9351	0.0005	0.0005	<.0001
11	SB		12	0.9032*	-5867.2739*	-6757.0218*	-6696.8468*	0.0005	0.0005*	<.0001

* Optimal Value of Criterion

Selection stopped at a local minimum of the SBC criterion.

Stop Details				
Candidate For	Effect	Candidate SBC		Compare SBC
Entry	DP	-6692.5673	>	-6696.8468

The GLMSELECT Procedure
Selected Model

The selected model, based on Validation ASE, is the model at Step 11.

Effects:	Intercept R HR SB RA ERA CG SHO SV BBA obp ops

Lasso

The GLMSELECT Procedure
Selected Model

Analysis of Variance				
Source	DF	Sum of Squares	Mean Square	F Value
Model	11	3.94846	0.35895	750.58
Error	873	0.41750	0.00047823	
Corrected Total	884	4.36595		

Root MSE	0.02187
Dependent Mean	0.49869
R-Square	0.9044
Adj R-Sq	0.9032
AIC	-5867.27389
AICC	-5866.85598
BIC	-6757.02181
C(p)	237.93063
SBC	-6696.84684
ASE (Train)	0.00047175
ASE (Validate)	0.00047475

Parameter Estimates		
Parameter	DF	Estimate
Intercept	1	0.164321
R	1	0.000354
HR	1	0.000054406
SB	1	0.000010531
RA	1	-0.000474
ERA	1	-0.002399
CG	1	0.000565
SHO	1	0.000820
SV	1	0.001917
BBA	1	-0.000010128
obp	1	0.565682
ops	1	0.208061