The SAS System

Demand Function Using OLS

The REG Procedure
Model: MODEL1
Dependent Variable: IQ

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	4	7.72520	1.93130	160.70	<.0001
Error	15	0.18027	0.01202		
Corrected Total	19	7.90547			

Root MSE	0.10963	R-Square	0.9772
Dependent Mean	0.87271	Adj R-Sq	0.9711
Coeff Var	12.56161		

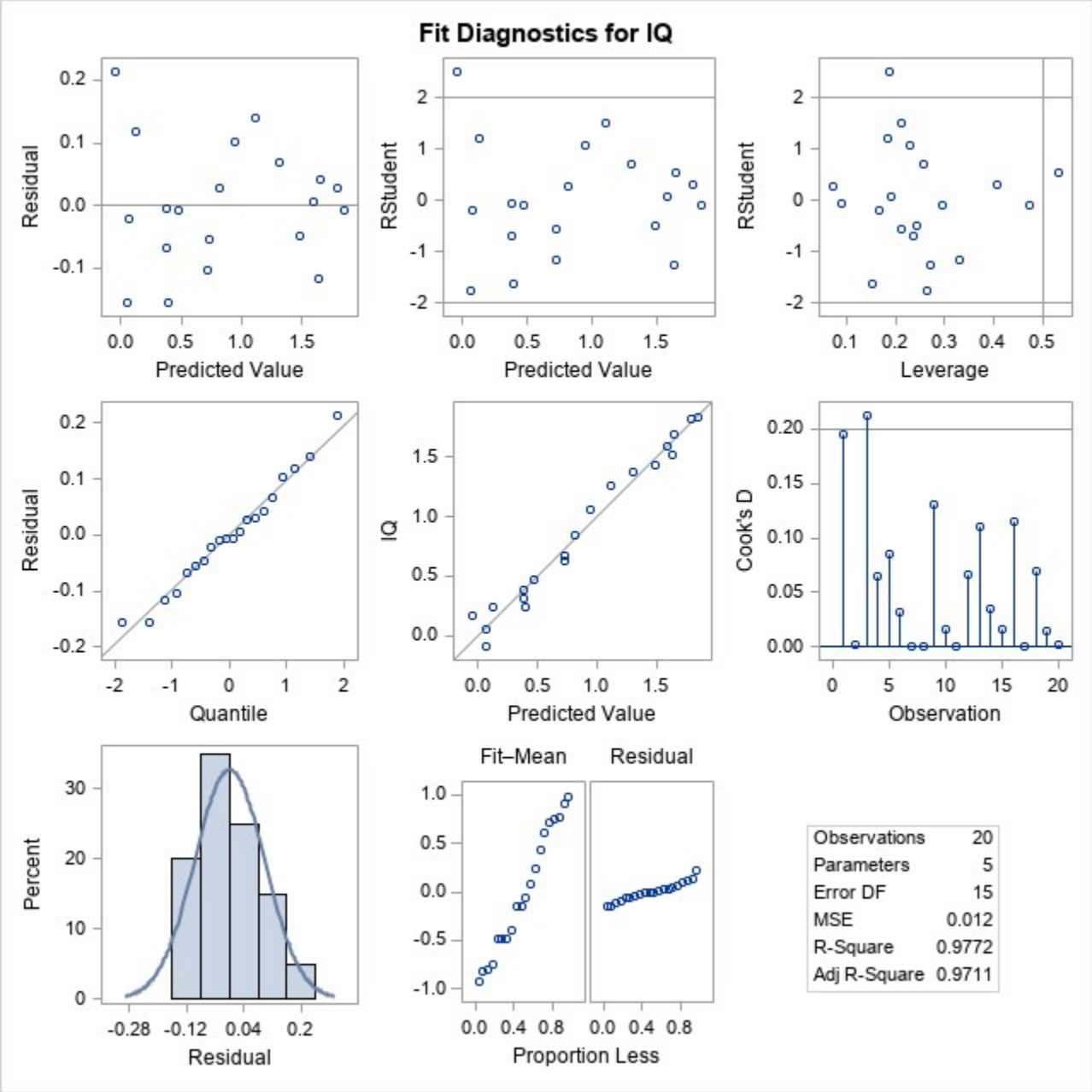
Parameter Estimates

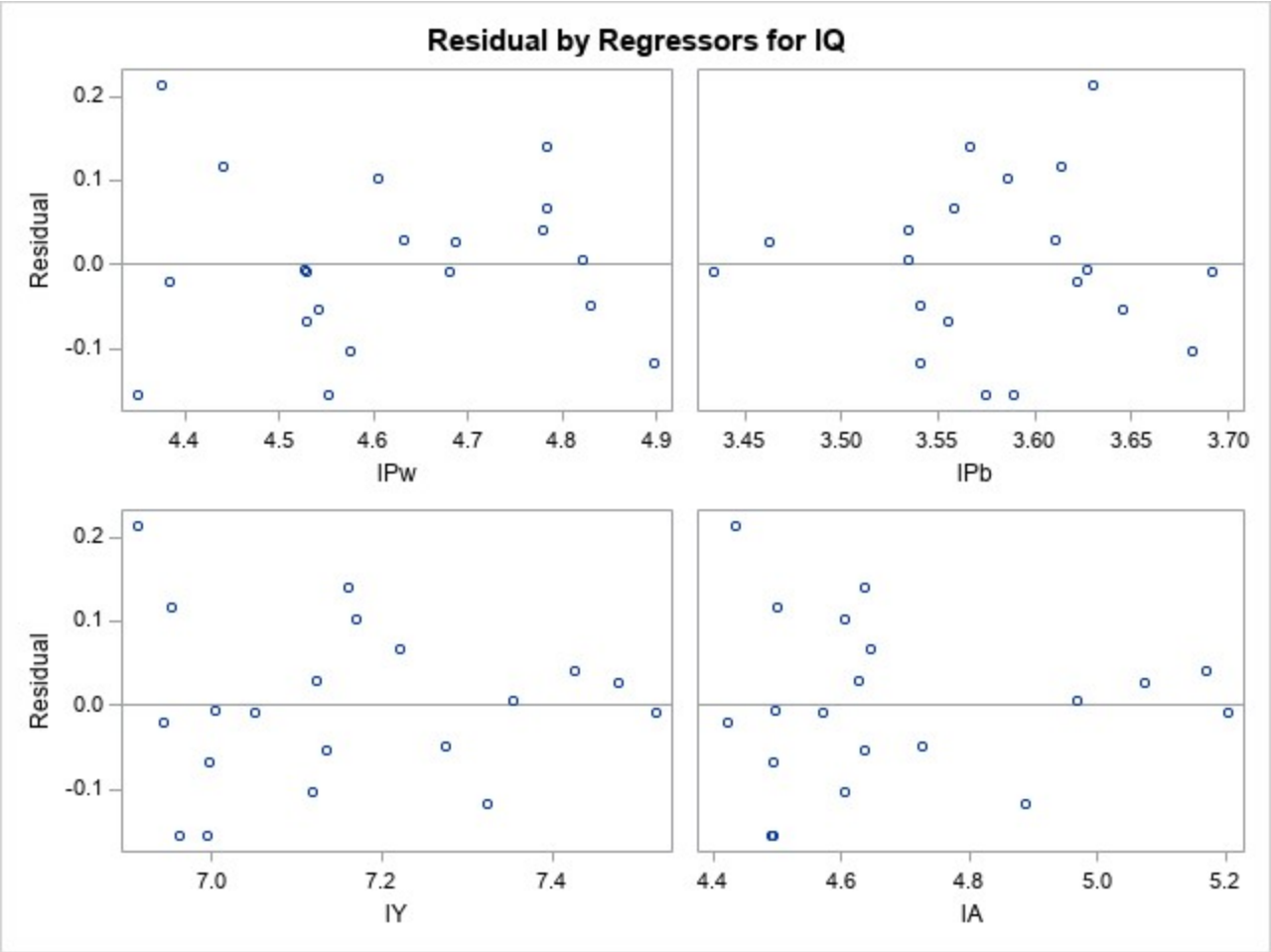
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-23.65122	3.91278	-6.04	<.0001
IPw	1	1.15826	0.28983	4.00	0.0012
IPb	1	-0.27483	0.60766	-0.45	0.6575
IY	1	3.21206	0.71400	4.50	0.0004
IA	1	-0.60299	0.44974	-1.34	0.2000

The SAS System

Demand Function Using OLS

The REG Procedure
Model: MODEL1
Dependent Variable: IQ




Residual by Regressors for IQ
Residual
0.2
0.1
0.0
-0.1
4.4
4.5
4.6
4.7
4.8
4.9
IPw
3.45
3.50
3.55
3.60
3.65
3.70
IPb
7.0
7.2
7.4
IY
4.4
4.6
4.8
5.0
5.2
IA

The SAS System

Supply Function Using OLS

The REG Procedure
Model: MODEL1
Dependent Variable: IQ

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	2	7.61493	3.80746	222.78	<.0001
Error	17	0.29054	0.01709		
Corrected Total	19	7.90547			

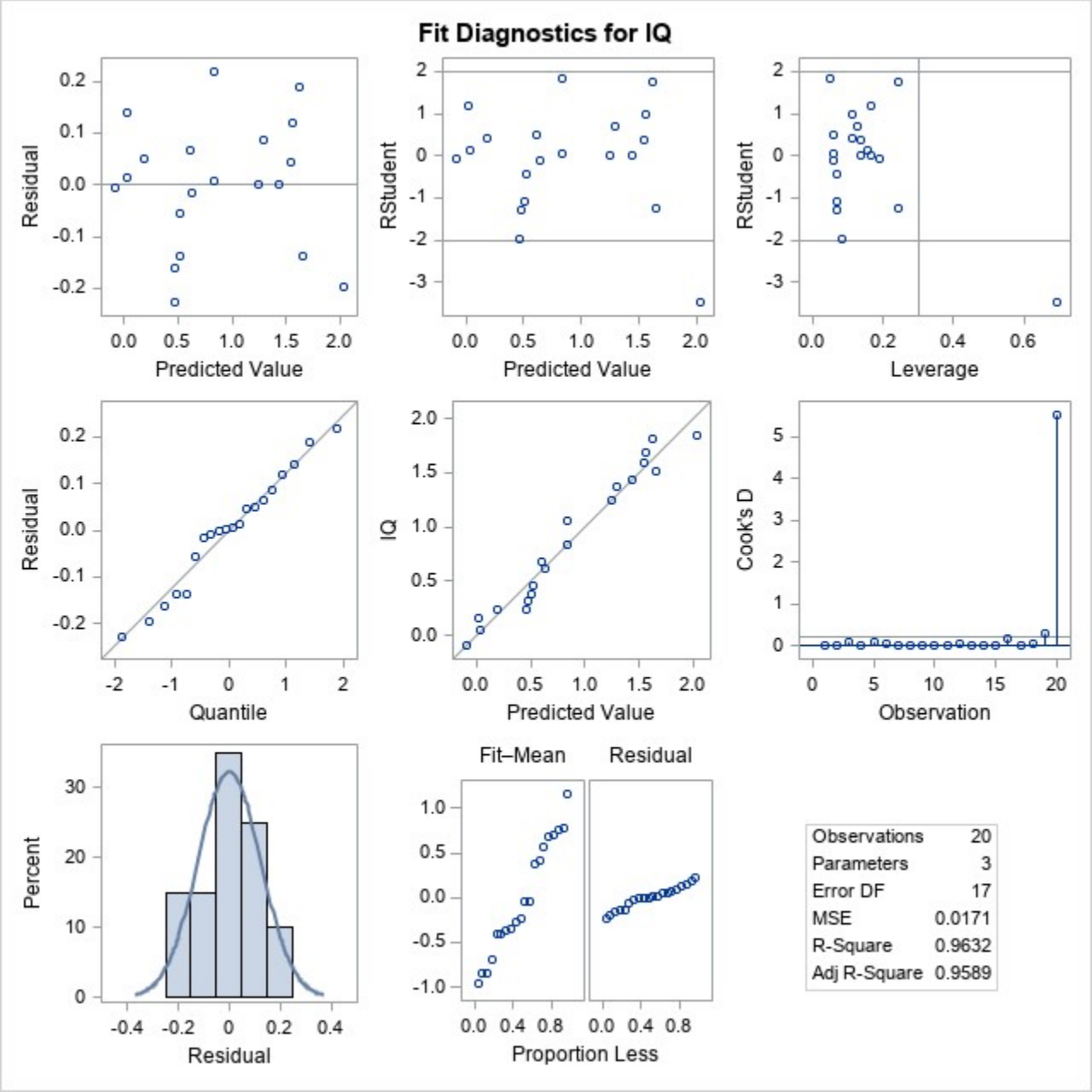
Root MSE	0.13073	R-Square	0.9632
Dependent Mean	0.87271	Adj R-Sq	0.9589
Coeff Var	14.97986		

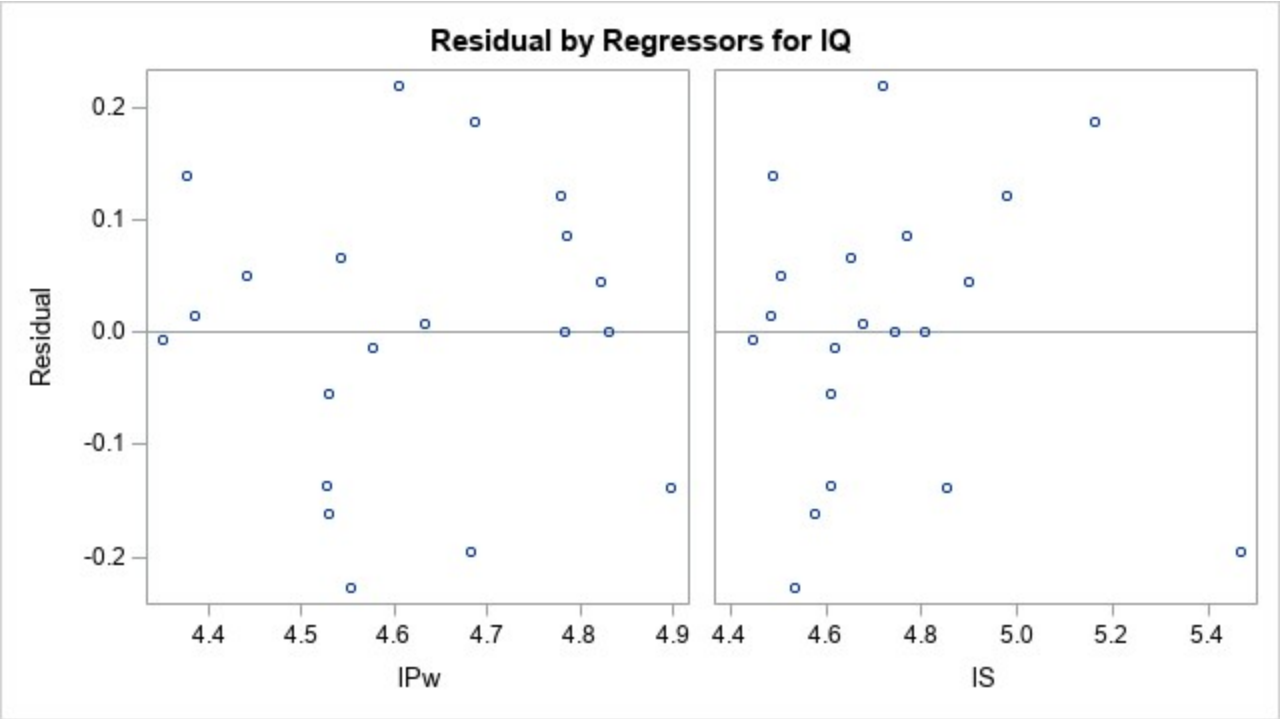
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-15.56708	0.84802	-18.36	<.0001
IPw	1	2.14495	0.23855	8.99	<.0001
IS	1	1.38255	0.15451	8.95	<.0001

The SAS System

Supply Function Using OLS

The REG Procedure
Model: MODEL1
Dependent Variable: IQ




Residual by Regressors for IQ
Residual
0.2
0.1
0.0
-0.1
-0.2
4.4
4.5
4.6
4.7
4.8
4.9
IPw
4.4
4.6
4.8
5.0
5.2
5.4
IS

The SAS System

IV for demand

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	DEMAND
Dependent Variable	IQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	7.547329	1.886832	129.71	<.0001
Error	15	0.218201	0.014547		
Corrected Total	19	7.905468			

Root MSE	0.12061	**R-Square**	0.97190
Dependent Mean	0.87271	**Adj R-Sq**	0.96441
Coeff Var	13.82014		

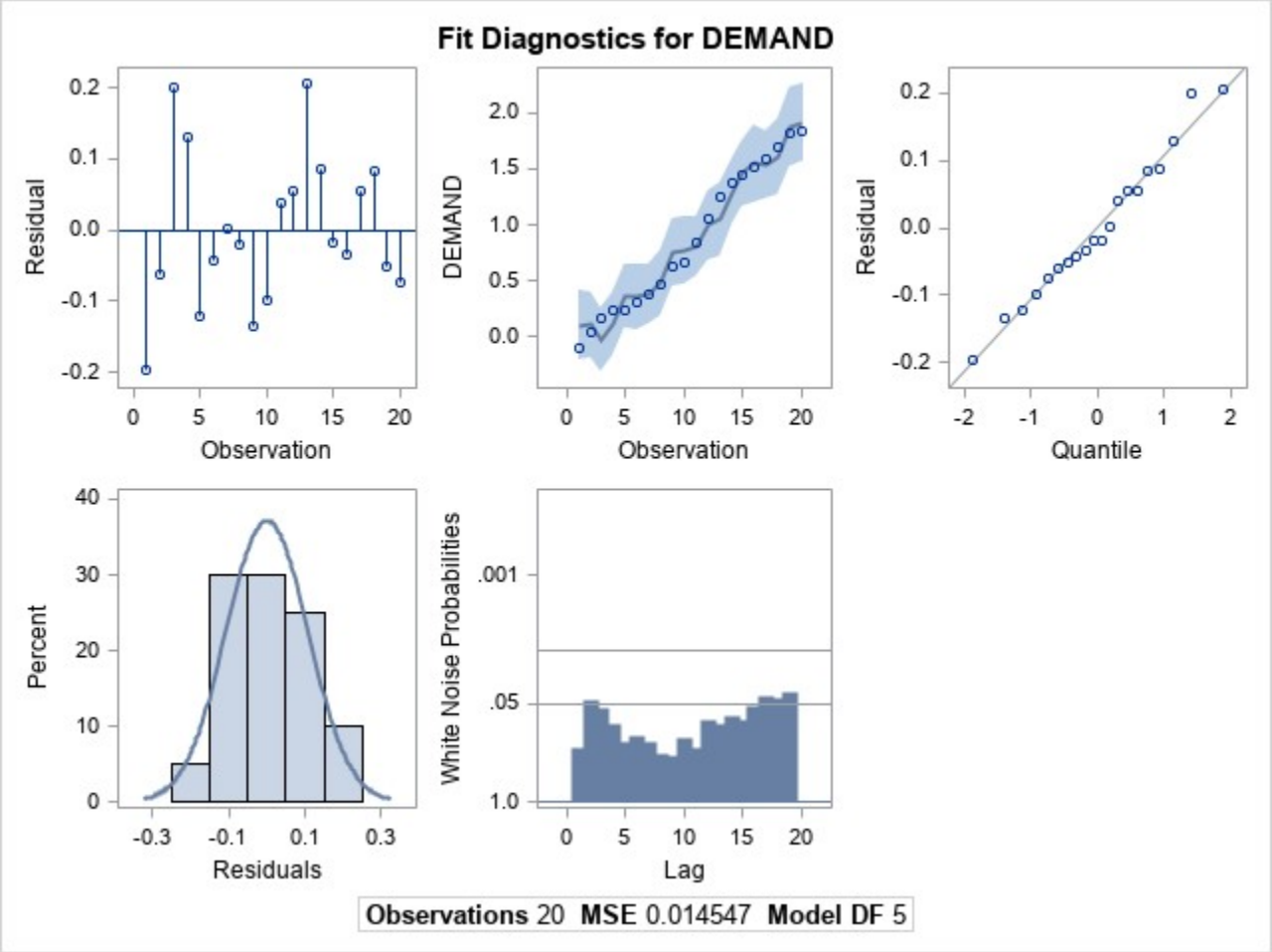
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-26.1950	5.147200	-5.09	0.0001
IPw	1	0.643359	0.654149	0.98	0.3410
IPb	1	-0.13966	0.685147	-0.20	0.8412
IY	1	4.082104	1.244412	3.28	0.0051
IA	1	-0.98508	0.651517	-1.51	0.1513

The SAS System

IV for demand

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

IV for supply: Use Pb

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	SUPPLY
Dependent Variable	IQ

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	2	6.233157	3.116579	41.62	<.0001
Error	17	1.273053	0.074885		
Corrected Total	19	7.905468			

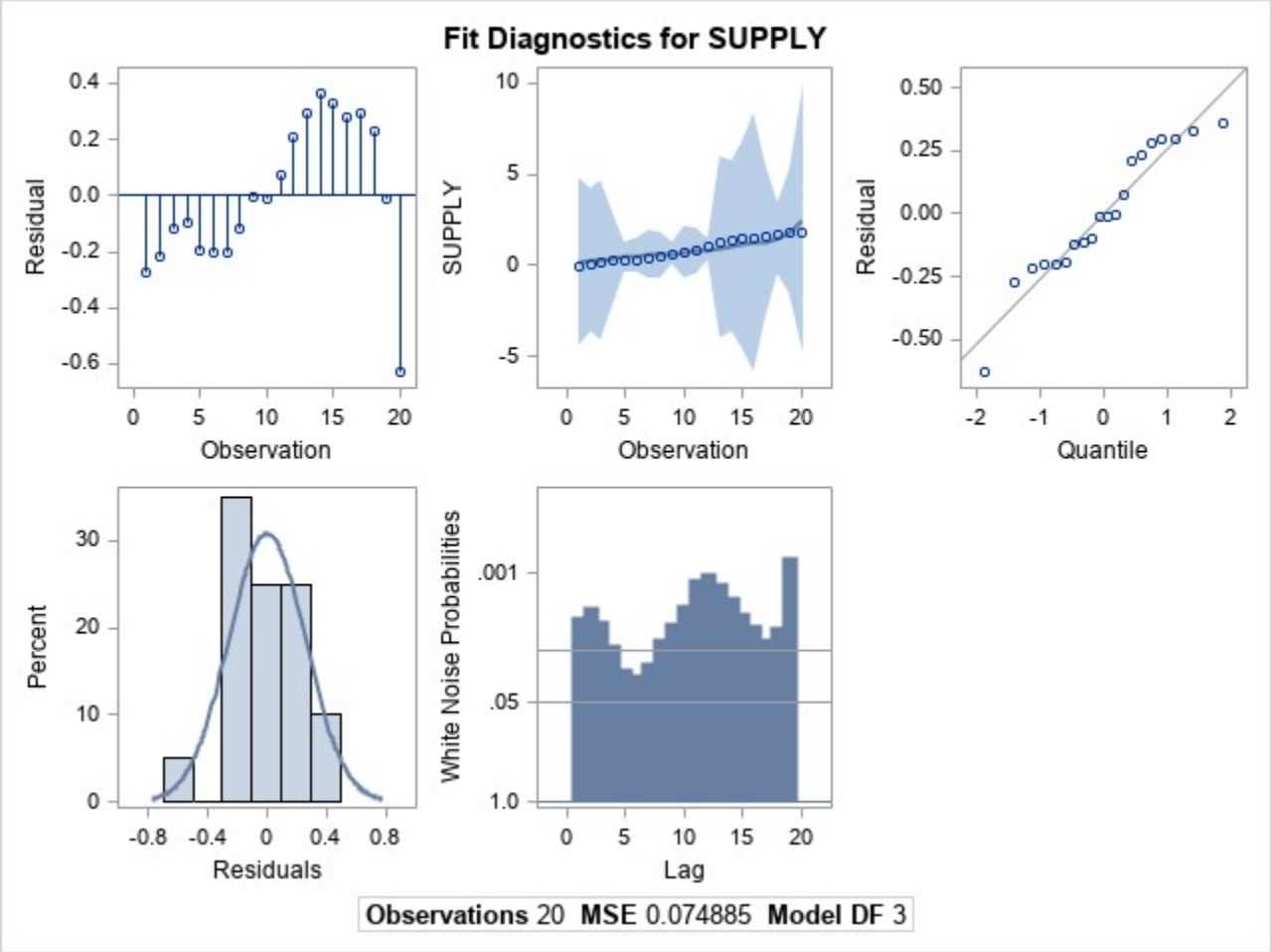
Root MSE	0.27365	**R-Square**	0.83040
Dependent Mean	0.87271	**Adj R-Sq**	0.81045
Coeff Var	31.35657		

Parameter Estimates					
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-10.7589	38.52983	-0.28	0.7834
IPw	1	0.336269	14.48688	0.02	0.9818
IS	1	2.130963	5.999651	0.36	0.7268

The SAS System

IV for supply: Use Pb

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

IV for supply: Use IA

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	SUPPLY
Dependent Variable	IQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	6.488528	3.244264	116.16	<.0001
Error	17	0.474812	0.027930		
Corrected Total	19	7.905468			

Root MSE	0.16712	**R-Square**	0.93181
Dependent Mean	0.87271	**Adj R-Sq**	0.92379
Coeff Var	19.14988		

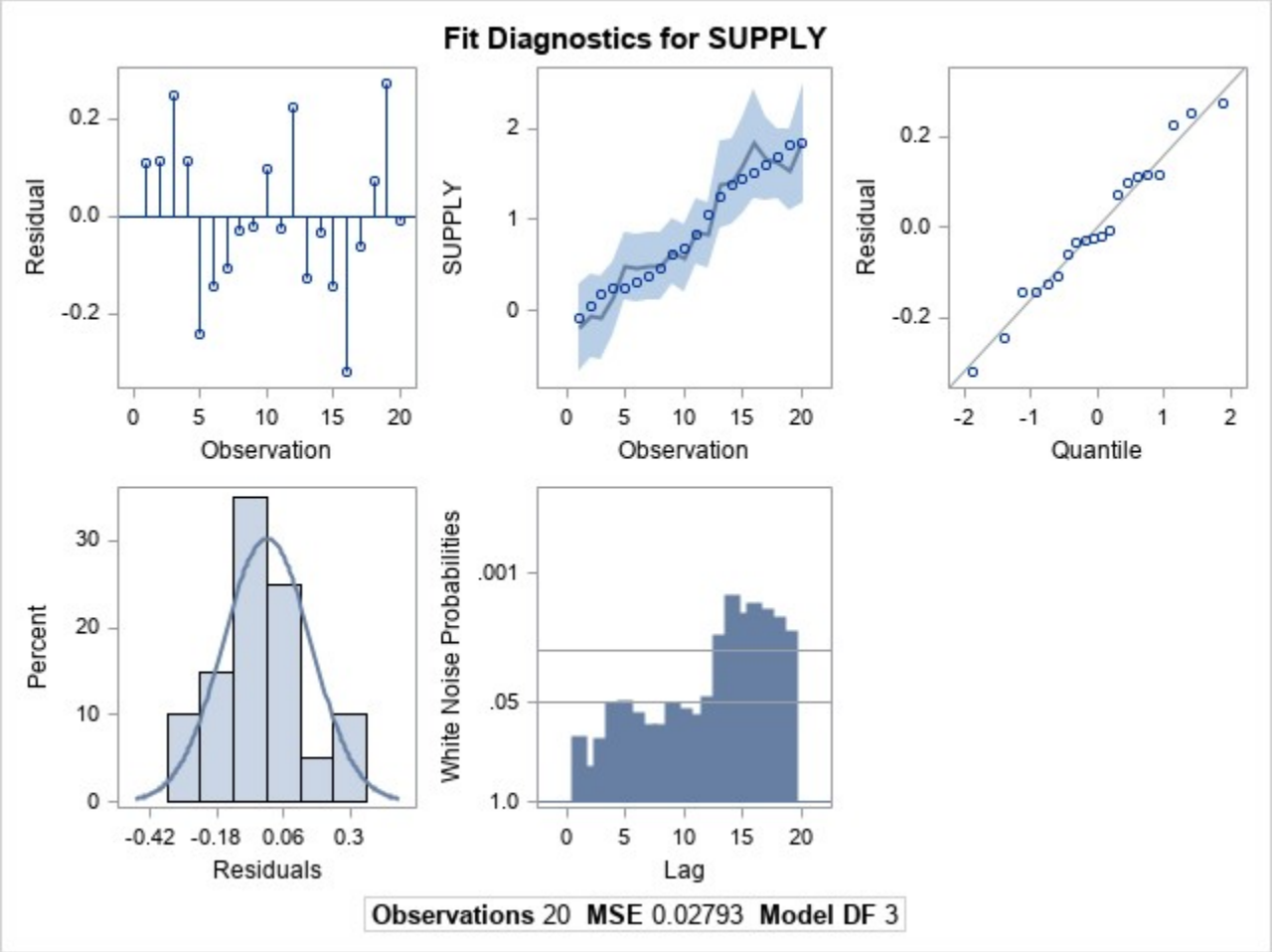
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-17.6494	2.672934	-6.60	<.0001
IPw	1	2.928247	0.968332	3.02	0.0077
IS	1	1.058435	0.428532	2.47	0.0244

The SAS System

IV for supply: Use IA

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

IV for supply: use IY

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	SUPPLY
Dependent Variable	IQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	7.407887	3.703943	167.78	<.0001
Error	17	0.375291	0.022076		
Corrected Total	19	7.905468			

Root MSE	0.14858	**R-Square**	0.95178
Dependent Mean	0.87271	**Adj R-Sq**	0.94611
Coeff Var	17.02509		

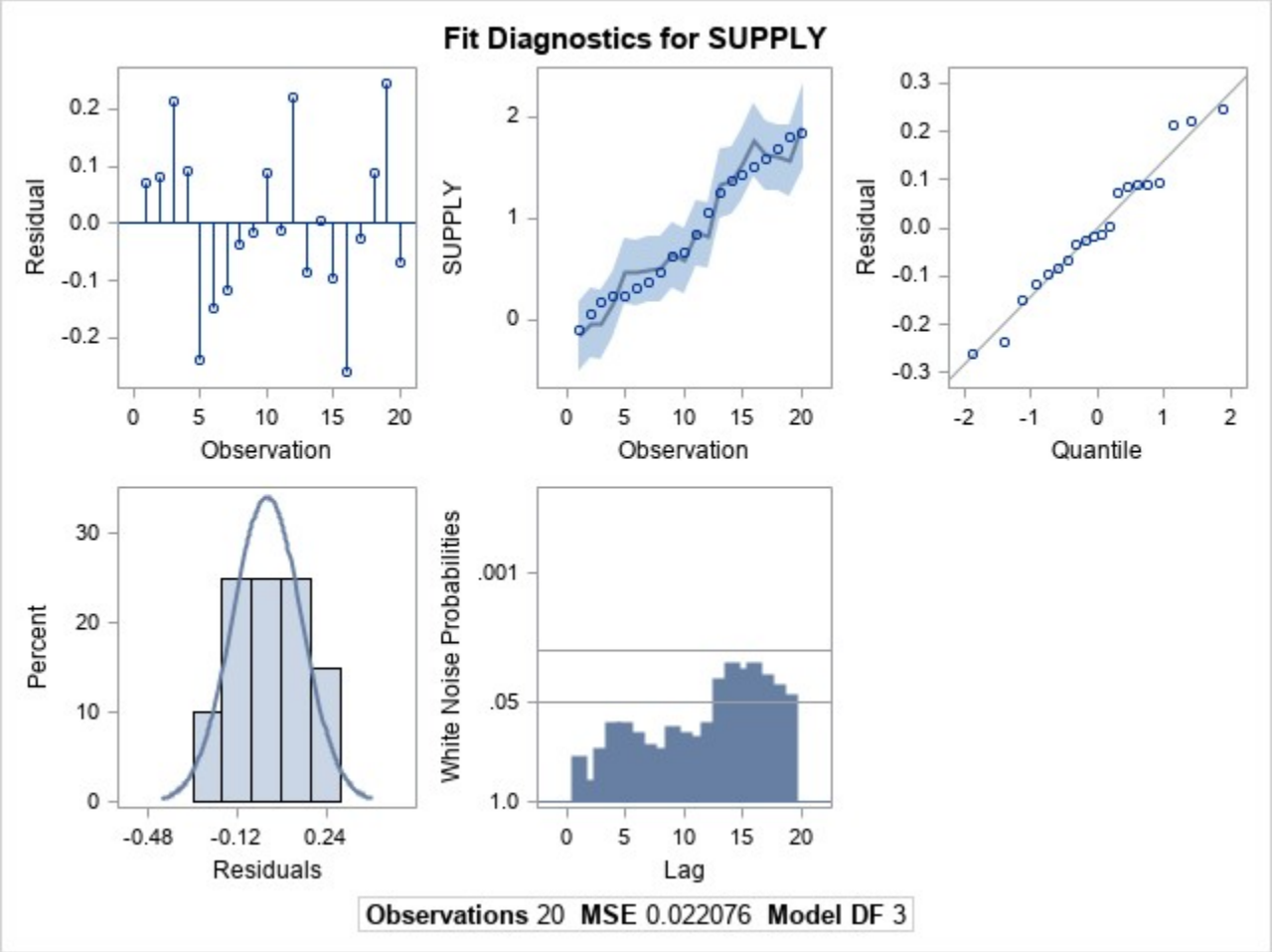
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-16.9793	1.166433	-14.56	<.0001
IPw	1	2.676167	0.366857	7.29	<.0001
IS	1	1.162742	0.203212	5.72	<.0001

The SAS System

IV for supply: use IY

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

IV for supply: Use All

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	SUPPLY
Dependent Variable	IQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	7.542166	3.771083	179.46	<.0001
Error	17	0.357225	0.021013		
Corrected Total	19	7.905468			

Root MSE	0.14496	**R-Square**	0.95478
Dependent Mean	0.87271	**Adj R-Sq**	0.94946
Coeff Var	16.61024		

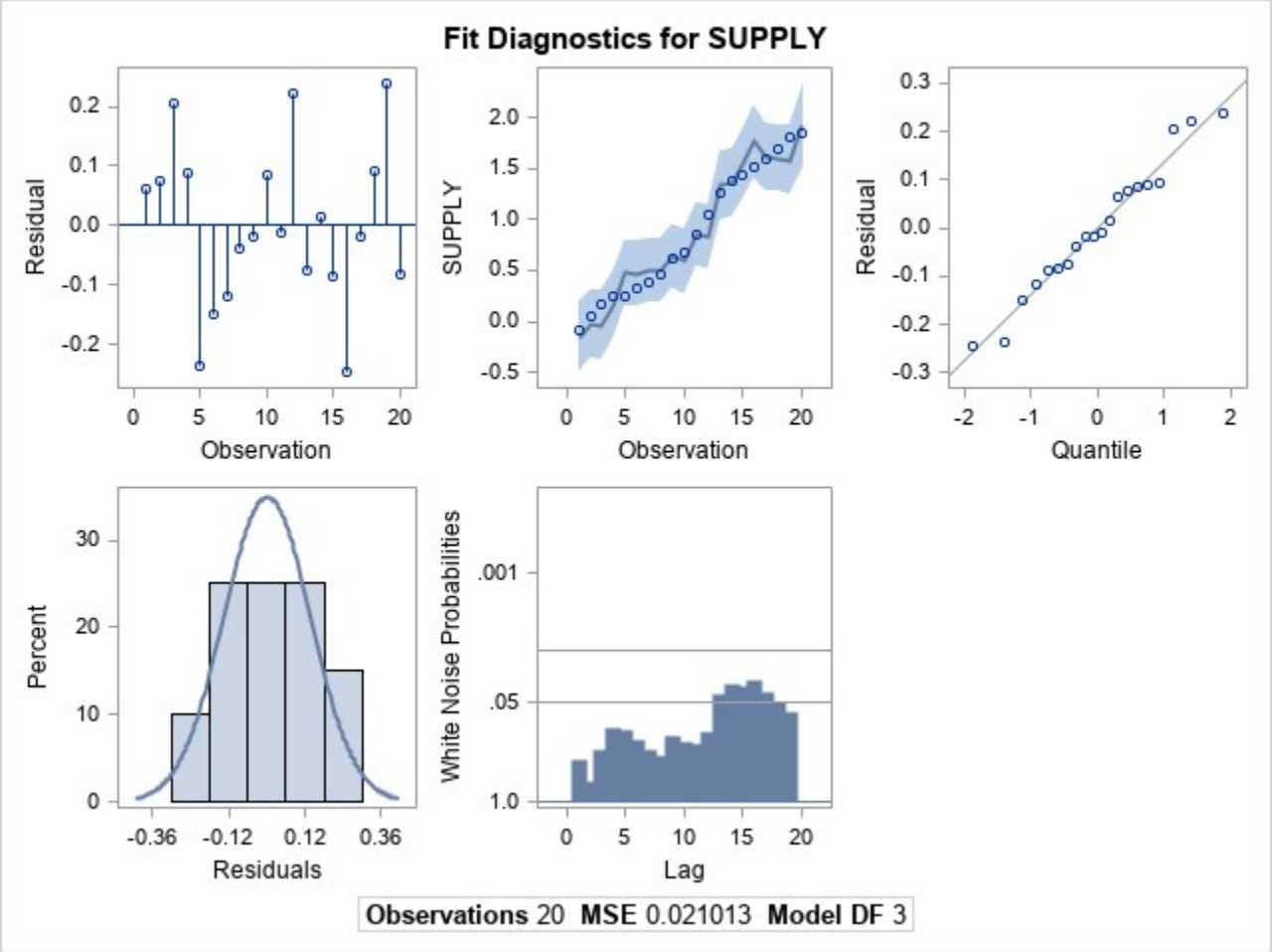
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-16.8197	1.079895	-15.58	<.0001
IPw	1	2.616158	0.331461	7.89	<.0001
IS	1	1.187573	0.190222	6.24	<.0001

The SAS System

IV for supply: Use All

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

Demand-Supply of Wine by 2sls

The SYSLIN Procedure
First Stage Regression Statistics

Model	First St
Dependent Variable	lQ

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	4	7.547329	1.886832	79.03	<.0001
Error	15	0.358140	0.023876		
Corrected Total	19	7.905468			

Root MSE	0.15452	**R-Square**	0.95470
Dependent Mean	0.87271	**Adj R-Sq**	0.94262
Coeff Var	17.70559		

Parameter Estimates					
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-28.9749	5.158721	-5.62	<.0001
lS	1	-0.37338	0.486373	-0.77	0.4546
lPb	1	-0.27076	0.935300	-0.29	0.7762
lA	1	-1.36968	0.569704	-2.40	0.0296
lY	1	5.449638	0.818394	6.66	<.0001

Model	First St
Dependent Variable	lPw

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	4	0.398356	0.099589	13.70	<.0001
Error	15	0.109078	0.007272		
Corrected Total	19	0.507434			

Root MSE	0.08528	**R-Square**	0.78504

Dependent Mean	4.61562	**Adj R-Sq**	0.72772
Coeff Var	1.84754		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-4.32094	2.846982	-1.52	0.1499
IS	1	-0.58036	0.268418	-2.16	0.0472
IPb	1	-0.20377	0.516171	-0.39	0.6986
IA	1	-0.59780	0.314407	-1.90	0.0766
IY	1	2.125616	0.451653	4.71	0.0003

The SAS System

Demand-Supply of Wine by 2sls

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	DEMAND
Dependent Variable	IQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	7.547329	1.886832	129.71	<.0001
Error	15	0.218201	0.014547		
Corrected Total	19	7.905468			

Root MSE	0.12061	**R-Square**	0.97190
Dependent Mean	0.87271	**Adj R-Sq**	0.96441
Coeff Var	13.82014		

Parameter Estimates

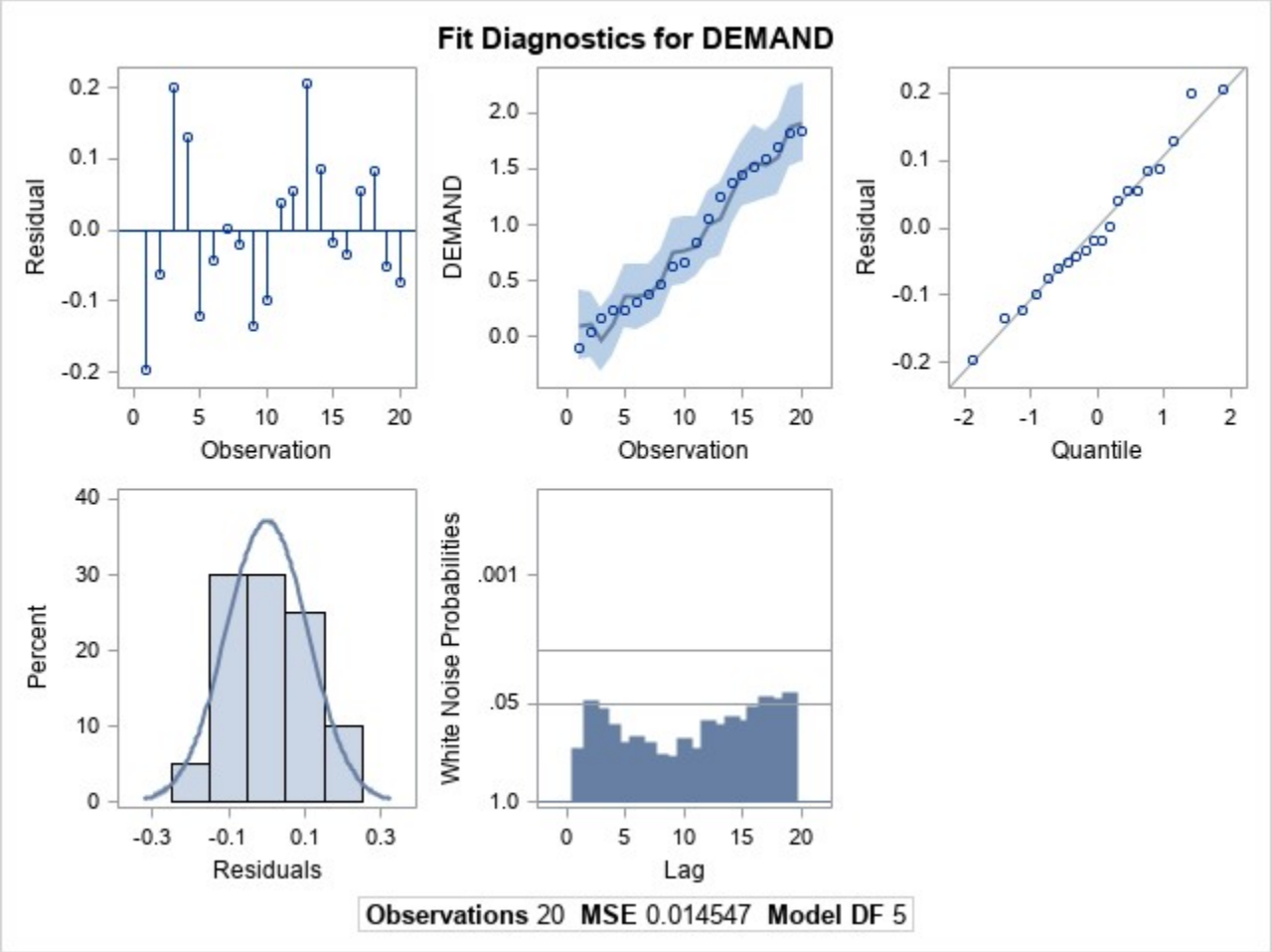
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-26.1950	5.147200	-5.09	0.0001
IPw	1	0.643359	0.654149	0.98	0.3410
IPb	1	-0.13966	0.685147	-0.20	0.8412
IA	1	-0.98508	0.651517	-1.51	0.1513
IY	1	4.082104	1.244412	3.28	0.0051

Note: The total number of instruments equals the number of parameters in the equation. The test for over-identification is not computed.

The SAS System

Demand-Supply of Wine by 2sls

The SYSLIN Procedure
Two-Stage Least Squares Estimation



The SAS System

Demand-Supply of Wine by 2sls

The SYSLIN Procedure
Two-Stage Least Squares Estimation

Model	SUPPLY
Dependent Variable	lQ

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	7.542166	3.771083	179.46	<.0001
Error	17	0.357225	0.021013		
Corrected Total	19	7.905468			

Root MSE	0.14496	**R-Square**	0.95478
Dependent Mean	0.87271	**Adj R-Sq**	0.94946
Coeff Var	16.61024		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-16.8197	1.079895	-15.58	<.0001
lPw	1	2.616158	0.331461	7.89	<.0001
lS	1	1.187573	0.190222	6.24	<.0001

Test for Overidentifying Restrictions

Num DF	Den DF	F Value	Pr > F
2	15	0.11	0.8966

The SAS System

Demand-Supply of Wine by 2sls

The SYSLIN Procedure
Two-Stage Least Squares Estimation