

Assignment 3

From the data set `assign3.dta`:

The study of production function assumes the model follows CES production function:

$$y = \gamma \left[\delta K^{-\rho} + (1 - \delta) L^{-\rho} \right]^{-\frac{\nu}{\rho}} + \varepsilon \quad (1)$$

where:

y = Output
 K = Capital Input
 L = Labor Input

γ = Efficiency Parameter,
 δ = Distribution Parameter,
 ν = Parameter,
 ρ = Substitution Parameter,
 ε = Disturbance Term

Elasticity of Substitution can be computed from: $\sigma = \frac{1}{1 - \rho}$

The model can then be transformed as:

$$\ln y = \ln \gamma - \frac{\nu}{\rho} \ln \left[\delta K^{-\rho} + (1 - \delta) L^{-\rho} \right] + \varepsilon \quad (2)$$

- Estimate the model (1) using NLS estimation method using initial values of $\gamma=4$, $\delta=0$, $\rho=-1$, $\nu=1$. Determine the estimated value of efficiency parameter (γ), distribution parameter (δ), parameter (ν), and substitution parameter (ρ), and elasticity of substitution (σ). Perform F-test to test whether $\delta=0$, $\rho=0$, and $\nu=0$.
- Estimate the model (2) using NLS estimation method initial values of $\ln \gamma=4$, $\delta=0$, $\rho=-1$, $\nu=1$. Determine the estimated value of efficiency parameter (γ), distribution parameter (δ), parameter (ν), and substitution parameter (ρ), and elasticity of substitution (σ). Perform F-test to test whether $\delta=0$, $\rho=0$, and $\nu=0$.
- From (a), if we change initial values to be $\gamma=55$, $\delta=0$, $\rho=-1$, $\nu=1$, what will happen to the estimated result? Interpret the estimated result and why do we get this kind of result? (Make comparison between previous result and the new result)
- From (a), if we change convergence value from default of 0.00001 or (1e-5) to (i) 0.1 or (1e-1) and (ii) (1e-15) with maximum iteration of 100, what will happen to the estimated result? Interpret the estimated result and why do we get this kind of result? (Make comparison between previous result and the new result)
- From (b), if we change initial values to be $\ln \gamma=55$, $\delta=0$, $\rho=-1$, $\nu=1$, what will happen to the estimated result? Interpret the estimated result and why do we get this kind of result? (Make comparison between previous result and the new result)
- From (b), if we change convergence value from default of 0.00001 or (1e-5) to (i) 0.1 or (1e-1) and (ii) (1e-15) with maximum iteration of 100, what will happen to

the estimated result? Interpret the estimated result and why do we get this kind of result? (Make comparison between previous result and the new result)

- g. Make comparison of the estimated results of model (1) and model (2). Which estimated result should be used in this case? Why?

$$(a) \quad y = 2.89e-17 \left[\begin{array}{cc} \begin{array}{c} .8017609 \\ (6.45e-17) \end{array} & \begin{array}{c} -(-1.88296) \\ (.0319332) \end{array} \end{array} K + \begin{array}{c} .1982391 \\ (1.2889715) \end{array} \right] \begin{array}{c} -(-1.88296) \\ (.1261608) \end{array} \end{array} \left[\begin{array}{c} -\frac{3.39589}{(-1.88296)} \end{array} \right]$$

$$R^2 = .9622, \quad \bar{R}^2 = .9621$$

$$H_0: \delta = \rho = \gamma = 0$$

$$F(3, 796) = 7383.35, \quad \text{prob} > F = 0.0000$$

$$(b) \quad \ln y = 3.7988 - \left(\frac{.9727292}{-.8079832} \right) \ln \left[\begin{array}{cc} \begin{array}{c} .2351025 \\ (.4234183) \end{array} & \begin{array}{c} -(-.8079832) \\ (.0317774) \end{array} \end{array} K + \begin{array}{c} .7648975 \\ (.0328464) \end{array} \right] \begin{array}{c} -(-.8079832) \\ (.2186233) \end{array} \end{array}$$

$$R^2 = .5435, \quad \bar{R}^2 = .5418$$

$$H_0: \delta = \rho = \gamma = 0$$

$$F(3, 796) = 365.55, \quad \text{prob} > F = 0.0000$$

$$(c) \quad y = 15.2373 \left[\begin{array}{cc} \begin{array}{c} .0549001 \\ (.9375264) \end{array} & \begin{array}{c} -(-38.85711) \\ (2.022752) \end{array} \end{array} K + \begin{array}{c} .9450999 \\ (533.6837) \end{array} \right] \begin{array}{c} -(-38.85711) \\ (.034893) \end{array} \end{array} \left[\begin{array}{c} -\frac{1.063514}{(-38.85711)} \end{array} \right]$$

$$R^2 = .4497, \quad \bar{R}^2 = .4470$$

When setting initial value of gamma as 4, all parameters are significant except for gamma. R^2 and $\bar{R}^2$ are .9622 and .9621

When setting initial value of gamma as 55, except nu, other parameters are insignificant. R^2 and $\bar{R}^2$ are 0.4497 and 0.4470 respectively which are less than that of the previous one. So, it means the variation in independent variables can explain less of the variation in dependent variable. As NLS is an iterative procedure, choosing initial value is important in order to minimize SSR.

So the result varies for different initial values.

$$\begin{aligned}
 (d) \quad Y &= 4.002499 \left[.0000248 K \right. & \left. + (1 - .0000248) L \right] & \left[\frac{.999995}{(-19.1589)} \right] \\
 & \quad (14.72642) \quad (.0071865) \quad (594.8331) & & (1.2082345) \\
 R^2 &= .0425, \quad \bar{R}^2 = .0377
 \end{aligned}$$

As this model with initial value of gamma as 4, it needs more than 100 iterations to get the best result. Limitation of iteration of 100 leads to insignificance of three parameters—gamma, delta, and rho—and low R-squared and adjusted R-squared. The model is sensitive to convergence value and iteration times.

(e). & (f). The result remains unchanged. The model is not sensitive to initial value, convergence value and iteration. All individual tests are significant under all circumstances, R-squared remains the same. This can be due to the transformation of the model, making it robust to the change.

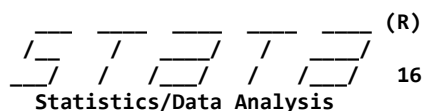
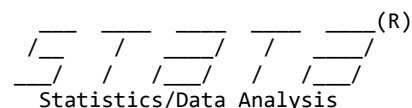
(g). Model 2. Because the result does not change when

1).initial value of gamma is changed a lot,

2).limits iteration of 100 times,

3).apply different convergence value,

all parameters are still significant with R-squared and adjusted R-squared of .5435 and .5418 respectively. Unlike model 1, the result varies a lot when changing initial value, convergence value, and number of iteration. So, model 2 is relatively a more robust model.



MP - Parallel Edition

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Notes:

1. Unicode is supported; see [help unicode advice](#).
2. More than 2 billion observations are allowed; see [help obs advice](#).
3. Maximum number of variables is set to 5000; see [help set maxvar](#).

```
1 . use "C:\Users\A\Downloads\assign3.dta"
```

```
2 . log using "C:\Users\A\Desktop\426-A3.smcl"
```

name: <unnamed>
log: C:\Users\A\Desktop\426-A3.smcl
log type: smcl
opened on: 10 Feb 2021, 21:16:46

```
3 . nl (y = {gamma}*(({delta}*k^(-{rho}))+1-{delta})*1^(-{rho})))^(-({nu}/{rho})), init(gamma 4 delta 0 rho  
> -1 nu 1)  
(obs = 800)
```

```
Iteration 0: residual SS = 2.35e+20  
Iteration 1: residual SS = 2.35e+20  
Iteration 2: residual SS = 2.35e+20  
Iteration 3: residual SS = 2.35e+20  
Iteration 4: residual SS = 2.35e+20  
Iteration 5: residual SS = 2.35e+20  
Iteration 6: residual SS = 2.35e+20  
Iteration 7: residual SS = 2.35e+20  
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Iteration 28: residual SS = 2.35e+20  
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Iteration 30: residual SS = 2.35e+20
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[illegible]

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Iteration 96: residual SS = 2.35e+20
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Iteration 345: residual SS = 2.05e+20
Iteration 346: residual SS = 2.03e+20
Iteration 347: residual SS = 2.03e+20
Iteration 348: residual SS = 2.01e+20
Iteration 349: residual SS = 1.97e+20
Iteration 350: residual SS = 1.93e+20
Iteration 351: residual SS = 1.86e+20
Iteration 352: residual SS = 8.10e+19
Iteration 353: residual SS = 6.60e+19
Iteration 354: residual SS = 9.31e+18
Iteration 355: residual SS = 9.27e+18

Iteration 356: residual SS = **9.27e+18**
 Iteration 357: residual SS = **9.27e+18**

Source	SS	df	MS			
Model	2.363e+20	4	5.9080e+19	Number of obs =	800	
Residual	9.271e+18	796	1.1647e+16	R-squared =	0.9622	
				Adj R-squared =	0.9621	
				Root MSE =	1.08e+08	
Total	2.456e+20	800	3.0699e+17	Res. dev. =	31861.36	

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
/gamma	2.89e-17	6.45e-17	0.45	0.654	-9.77e-17	1.55e-16
/delta	.8017609	.0319332	25.11	0.000	.7390776	.8644442
/rho	-1.88296	.2889715	-6.52	0.000	-2.450196	-1.315724
/nu	3.39589	.1261608	26.92	0.000	3.148243	3.643538

6 . test (/delta=0) (/rho=0) (/nu=0)

(1) [delta]_cons = 0
 (2) [rho]_cons = 0
 (3) [nu]_cons = 0

F(3, 796) = **7383.35**
 Prob > F = **0.0000**

7 . nl (lny = {ln(gamma)}-({nu}/{rho})*ln({delta}*k^(-{rho})+(1-{delta})*l^(-{rho}))), init(ln(gamma) 4 delt
 > a 0 rho -1 nu 1)
 (obs = 800)

Iteration 0: residual SS = **1143.768**
 Iteration 1: residual SS = **1141.38**
 Iteration 2: residual SS = **1079.499**
 Iteration 3: residual SS = **1059.416**
 Iteration 4: residual SS = **1017.304**
 Iteration 5: residual SS = **994.3046**
 Iteration 6: residual SS = **849.6639**
 Iteration 7: residual SS = **820.5377**
 Iteration 8: residual SS = **820.0491**
 Iteration 9: residual SS = **819.995**
 Iteration 10: residual SS = **819.9926**
 Iteration 11: residual SS = **819.9925**
 Iteration 12: residual SS = **819.9925**
 Iteration 13: residual SS = **819.9925**
 Iteration 14: residual SS = **819.9925**
 Iteration 15: residual SS = **819.9925**
 Iteration 16: residual SS = **819.9925**

Source	SS	df	MS			
Model	976.20485	3	325.401616	Number of obs =	800	
Residual	819.99246	796	1.03014129	R-squared =	0.5435	
				Adj R-squared =	0.5418	
				Root MSE =	1.014959	
Total	1796.1973	799	2.24805671	Res. dev. =	2290.048	

lny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln(gamma)	3.7988	.4234183	8.97	0.000	2.967652	4.629949
/nu	.9727292	.0317774	30.61	0.000	.9103518	1.035107
/rho	-.8079832	.2186233	-3.70	0.000	-1.237129	-.378837
/delta	.2351025	.0328464	7.16	0.000	.1706267	.2995782

Parameter ln(gamma) taken as constant term in model & ANOVA table

```
10 . nl (lny = {ln(gamma)}-({nu}/{rho})*ln({delta}*k^(-{rho})*(1-{delta})*l^(-{rho}))), init(ln(gamma) 4 delt
> a 0 rho -1 nu 1)
(obs = 800)
```

```
Iteration 0: residual SS = 1143.768
Iteration 1: residual SS = 1141.38
Iteration 2: residual SS = 1079.499
Iteration 3: residual SS = 1059.416
Iteration 4: residual SS = 1017.304
Iteration 5: residual SS = 994.3046
Iteration 6: residual SS = 849.6639
Iteration 7: residual SS = 820.5377
Iteration 8: residual SS = 820.0491
Iteration 9: residual SS = 819.995
Iteration 10: residual SS = 819.9926
Iteration 11: residual SS = 819.9925
Iteration 12: residual SS = 819.9925
Iteration 13: residual SS = 819.9925
Iteration 14: residual SS = 819.9925
Iteration 15: residual SS = 819.9925
Iteration 16: residual SS = 819.9925
```

Source	SS	df	MS		
Model	976.20485	3	325.401616	Number of obs =	800
Residual	819.99246	796	1.03014129	R-squared =	0.5435
				Adj R-squared =	0.5418
				Root MSE =	1.014959
Total	1796.1973	799	2.24805671	Res. dev. =	2290.048

lny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln(gamma)	3.7988	.4234183	8.97	0.000	2.967652	4.629949
/nu	.9727292	.0317774	30.61	0.000	.9103518	1.035107
/rho	-.8079832	.2186233	-3.70	0.000	-1.237129	-.378837
/delta	.2351025	.0328464	7.16	0.000	.1706267	.2995782

Parameter ln(gamma) taken as constant term in model & ANOVA table

```
11 . test (/delta=0) (/rho=0) (/nu=0)
```

```
( 1) [delta]_cons = 0
( 2) [rho]_cons = 0
( 3) [nu]_cons = 0
```

```
F( 3, 796) = 366.55
Prob > F = 0.0000
```

```
12 . nl (y = {gamma}*(((delta)*k^(-{rho})+(1-{delta})*1^(-{rho})))^(-({nu}/{rho}))), init(gamma 55 delta 0 rho
> o -1 nu 1)
(obs = 800)
```

```
Iteration 0: residual SS = 1.65e+20
Iteration 1: residual SS = 1.62e+20
Iteration 2: residual SS = 1.62e+20
Iteration 3: residual SS = 1.62e+20
Iteration 4: residual SS = 1.61e+20
Iteration 5: residual SS = 1.42e+20
Iteration 6: residual SS = 1.42e+20
Iteration 7: residual SS = 1.42e+20
Iteration 8: residual SS = 1.41e+20
Iteration 9: residual SS = 1.41e+20
Iteration 10: residual SS = 1.41e+20
Iteration 11: residual SS = 1.38e+20
Iteration 12: residual SS = 1.36e+20
Iteration 13: residual SS = 1.35e+20
Iteration 14: residual SS = 1.35e+20
Iteration 15: residual SS = 1.35e+20
Iteration 16: residual SS = 1.35e+20
Iteration 17: residual SS = 1.35e+20
Iteration 18: residual SS = 1.35e+20
Iteration 19: residual SS = 1.35e+20
Iteration 20: residual SS = 1.35e+20
```

Source	SS	df	MS		
Model	1.105e+20	4	2.7613e+19	Number of obs =	800
Residual	1.351e+20	796	1.6977e+17	R-squared =	0.4497
				Adj R-squared =	0.4470
				Root MSE =	4.12e+08
Total	2.456e+20	800	3.0699e+17	Res. dev. =	34004.88

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
/gamma	15.2373	9.375264	1.63	0.105	-3.165861	33.64046
/delta	.0549001	2.022752	0.03	0.978	-3.915657	4.025458
/rho	-38.85711	533.6837	-0.07	0.942	-1086.451	1008.737
/nu	1.063514	.034893	30.48	0.000	.9950213	1.132008

```
13 . nl (y = {gamma}*(((delta)*k^(-{rho})+(1-{delta})*1^(-{rho})))^(-({nu}/{rho}))), init(gamma 4 delta 0 rho
> -1 nu 1) eps(1e-5) iter(100)
(obs = 800)
```

Iteration 0: residual SS = 2.35e+20
Iteration 1: residual SS = 2.35e+20
Iteration 2: residual SS = 2.35e+20
Iteration 3: residual SS = 2.35e+20
Iteration 4: residual SS = 2.35e+20
Iteration 5: residual SS = 2.35e+20
Iteration 6: residual SS = 2.35e+20
Iteration 7: residual SS = 2.35e+20
Iteration 8: residual SS = 2.35e+20
Iteration 9: residual SS = 2.35e+20
Iteration 10: residual SS = 2.35e+20
Iteration 11: residual SS = 2.35e+20
Iteration 12: residual SS = 2.35e+20
Iteration 13: residual SS = 2.35e+20
Iteration 14: residual SS = 2.35e+20
Iteration 15: residual SS = 2.35e+20
Iteration 16: residual SS = 2.35e+20
Iteration 17: residual SS = 2.35e+20
Iteration 18: residual SS = 2.35e+20
Iteration 19: residual SS = 2.35e+20
Iteration 20: residual SS = 2.35e+20
Iteration 21: residual SS = 2.35e+20
Iteration 22: residual SS = 2.35e+20
Iteration 23: residual SS = 2.35e+20
Iteration 24: residual SS = 2.35e+20
Iteration 25: residual SS = 2.35e+20
Iteration 26: residual SS = 2.35e+20
Iteration 27: residual SS = 2.35e+20
Iteration 28: residual SS = 2.35e+20
Iteration 29: residual SS = 2.35e+20
Iteration 30: residual SS = 2.35e+20
Iteration 31: residual SS = 2.35e+20
Iteration 32: residual SS = 2.35e+20
Iteration 33: residual SS = 2.35e+20
Iteration 34: residual SS = 2.35e+20
Iteration 35: residual SS = 2.35e+20
Iteration 36: residual SS = 2.35e+20
Iteration 37: residual SS = 2.35e+20
Iteration 38: residual SS = 2.35e+20
Iteration 39: residual SS = 2.35e+20
Iteration 40: residual SS = 2.35e+20
Iteration 41: residual SS = 2.35e+20
Iteration 42: residual SS = 2.35e+20
Iteration 43: residual SS = 2.35e+20
Iteration 44: residual SS = 2.35e+20
Iteration 45: residual SS = 2.35e+20
Iteration 46: residual SS = 2.35e+20
Iteration 47: residual SS = 2.35e+20
Iteration 48: residual SS = 2.35e+20
Iteration 49: residual SS = 2.35e+20
Iteration 50: residual SS = 2.35e+20
Iteration 51: residual SS = 2.35e+20
Iteration 52: residual SS = 2.35e+20
Iteration 53: residual SS = 2.35e+20
Iteration 54: residual SS = 2.35e+20
Iteration 55: residual SS = 2.35e+20
Iteration 56: residual SS = 2.35e+20
Iteration 57: residual SS = 2.35e+20
Iteration 58: residual SS = 2.35e+20
Iteration 59: residual SS = 2.35e+20
Iteration 60: residual SS = 2.35e+20
Iteration 61: residual SS = 2.35e+20
Iteration 62: residual SS = 2.35e+20
Iteration 63: residual SS = 2.35e+20
Iteration 64: residual SS = 2.35e+20

Iteration 65: residual SS = 2.35e+20
 Iteration 66: residual SS = 2.35e+20
 Iteration 67: residual SS = 2.35e+20
 Iteration 68: residual SS = 2.35e+20
 Iteration 69: residual SS = 2.35e+20
 Iteration 70: residual SS = 2.35e+20
 Iteration 71: residual SS = 2.35e+20
 Iteration 72: residual SS = 2.35e+20
 Iteration 73: residual SS = 2.35e+20
 Iteration 74: residual SS = 2.35e+20
 Iteration 75: residual SS = 2.35e+20
 Iteration 76: residual SS = 2.35e+20
 Iteration 77: residual SS = 2.35e+20
 Iteration 78: residual SS = 2.35e+20
 Iteration 79: residual SS = 2.35e+20
 Iteration 80: residual SS = 2.35e+20
 Iteration 81: residual SS = 2.35e+20
 Iteration 82: residual SS = 2.35e+20
 Iteration 83: residual SS = 2.35e+20
 Iteration 84: residual SS = 2.35e+20
 Iteration 85: residual SS = 2.35e+20
 Iteration 86: residual SS = 2.35e+20
 Iteration 87: residual SS = 2.35e+20
 Iteration 88: residual SS = 2.35e+20
 Iteration 89: residual SS = 2.35e+20
 Iteration 90: residual SS = 2.35e+20
 Iteration 91: residual SS = 2.35e+20
 Iteration 92: residual SS = 2.35e+20
 Iteration 93: residual SS = 2.35e+20
 Iteration 94: residual SS = 2.35e+20
 Iteration 95: residual SS = 2.35e+20
 Iteration 96: residual SS = 2.35e+20
 Iteration 97: residual SS = 2.35e+20
 Iteration 98: residual SS = 2.35e+20
 Iteration 99: residual SS = 2.35e+20

Source	SS	df	MS		
Model	1.044e+19	4	2.6110e+18	Number of obs =	800
Residual	2.351e+20	796	2.9541e+17	R-squared =	0.0425
				Adj R-squared =	0.0377
				Root MSE =	5.44e+08
Total	2.456e+20	800	3.0699e+17	Res. dev. =	34448.01

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
/gamma	4.002499	14.72642	0.27	0.786	-24.90472	32.90971
/delta	.0000248	.0071865	0.00	0.997	-.014082	.0141315
/rho	-19.1589	594.8331	-0.03	0.974	-1186.786	1148.468
/nu	.9999955	.2082545	4.80	0.000	.5912026	1.408788

convergence not achieved
 r(430);

```
14 . nl (lny = {ln(gamma)}-({nu}/{rho})*ln({delta}*k^(-{rho})+(1-{delta})*1^(-{rho}))), init(ln(gamma) 55 del
> ta 0 rho -1 nu 1)
(obs = 800)
```

```
Iteration 0: residual SS = 2124801
Iteration 1: residual SS = 2060610
Iteration 2: residual SS = 1887116
Iteration 3: residual SS = 1582784
Iteration 4: residual SS = 1455774
Iteration 5: residual SS = 331214.1
Iteration 6: residual SS = 324993.9
Iteration 7: residual SS = 220207.8
Iteration 8: residual SS = 210870.1
Iteration 9: residual SS = 950.7696
Iteration 10: residual SS = 933.3203
Iteration 11: residual SS = 905.8972
Iteration 12: residual SS = 820.0868
Iteration 13: residual SS = 819.9934
Iteration 14: residual SS = 819.9925
Iteration 15: residual SS = 819.9925
Iteration 16: residual SS = 819.9925
Iteration 17: residual SS = 819.9925
Iteration 18: residual SS = 819.9925
Iteration 19: residual SS = 819.9925
Iteration 20: residual SS = 819.9925
```

Source	SS	df	MS			
Model	976.20485	3	325.401616	Number of obs =	800	
Residual	819.99246	796	1.03014129	R-squared =	0.5435	
				Adj R-squared =	0.5418	
				Root MSE =	1.014959	
Total	1796.1973	799	2.24805671	Res. dev. =	2290.048	

lny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln(gamma)	3.7988	.4234183	8.97	0.000	2.967652	4.629949
/nu	.9727292	.0317774	30.61	0.000	.9103518	1.035107
/rho	-.8079835	.218623	-3.70	0.000	-1.237129	-.3788378
/delta	.2351024	.0328464	7.16	0.000	.1706267	.2995782

Parameter ln(gamma) taken as constant term in model & ANOVA table

```
24 . nl (lny = {ln(gamma)}-({nu}/{rho})*ln({delta}*k^(-{rho})+(1-{delta})*1^(-{rho}))), init(ln(gamma) 4 del
> a 0 rho -1 nu 1) eps(1e-5) iter(100)
(obs = 800)
```

```
Iteration 0: residual SS = 1143.768
Iteration 1: residual SS = 1141.38
Iteration 2: residual SS = 1079.499
Iteration 3: residual SS = 1059.416
Iteration 4: residual SS = 1017.304
Iteration 5: residual SS = 994.3046
Iteration 6: residual SS = 849.6639
Iteration 7: residual SS = 820.5377
Iteration 8: residual SS = 820.0491
Iteration 9: residual SS = 819.995
Iteration 10: residual SS = 819.9926
Iteration 11: residual SS = 819.9925
Iteration 12: residual SS = 819.9925
Iteration 13: residual SS = 819.9925
Iteration 14: residual SS = 819.9925
Iteration 15: residual SS = 819.9925
```

Iteration 16: residual SS = **819.9925**

Source	SS	df	MS			
Model	976.20485	3	325.401616	Number of obs =	800	
Residual	819.99246	796	1.03014129	R-squared =	0.5435	
				Adj R-squared =	0.5418	
				Root MSE =	1.014959	
Total	1796.1973	799	2.24805671	Res. dev. =	2290.048	

lny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln(gamma)	3.7988	.4234183	8.97	0.000	2.967652	4.629949
/nu	.9727292	.0317774	30.61	0.000	.9103518	1.035107
/rho	-.8079832	.2186233	-3.70	0.000	-1.237129	-.378837
/delta	.2351025	.0328464	7.16	0.000	.1706267	.2995782

Parameter ln(gamma) taken as constant term in model & ANOVA table