The SAS System

The PANEL Procedure
Fuller and Battese Variance Components (RanOne)

Dependent Variable: LnC

Model Description	
Estimation Method	RanOne
Number of Cross Sections	6
Time Series Length	15

Fit Statistics			
SSE	0.2933	**DFE**	86
MSE	0.0034	**Root MSE**	0.0584
R-Square	0.9926		

Variance Component Estimates	
Variance Component for Cross Sections	0.474418
Variance Component for Error	0.003613

Hausman Test for Random Effects		
DF	**m Value**	**Pr > m**
3	0.01	0.9999

Breusch Pagan Test for Random Effects (One Way)		
DF	**m Value**	**Pr > m**
1	334.85	<.0001

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Label**
Intercept	1	9.709637	0.3521	27.58	<.0001	Intercept
LnQ	1	0.918714	0.0289	31.83	<.0001	
LnPF	1	0.417726	0.0147	28.38	<.0001	
LF	1	-1.06998	0.1959	-5.46	<.0001	LF

The SAS System

The PANEL Procedure
Fuller and Battese Variance Components (RanOne)

Dependent Variable: LnC

The SAS System

The PANEL Procedure
Fuller and Battese Variance Components (RanTwo)

Dependent Variable: LnC

Model Description	
Estimation Method	RanTwo
Number of Cross Sections	6
Time Series Length	15

Fit Statistics			
SSE	0.2322	**DFE**	86
MSE	0.0027	**Root MSE**	0.0520
R-Square	0.9829		

Variance Component Estimates	
Variance Component for Cross Sections	0.017439
Variance Component for Time Series	0.001081
Variance Component for Error	0.00264

Hausman Test for Random Effects		
DF	**m Value**	**Pr > m**
3	6.93	0.0741

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Label**
Intercept	1	9.362676	0.2440	38.38	<.0001	Intercept
LnQ	1	0.866448	0.0255	33.98	<.0001	
LnPF	1	0.436163	0.0172	25.41	<.0001	
LF	1	-0.98053	0.2235	-4.39	<.0001	LF

The SAS System

The PANEL Procedure
Fuller and Battese Variance Components (RanTwo)

Dependent Variable: LnC

The SAS System

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
T	15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Number of Observations Read	90
Number of Observations Used	90

The SAS System

The GLM Procedure

Dependent Variable: LnC

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	17	112.9527040	6.6442767	439.62	<.0001
Error	72	1.0881909	0.0151138		
Corrected Total	89	114.0408949			

R-Square	Coeff Var	Root MSE	LnC Mean
0.990458	0.919809	0.122938	13.36561

Source	DF	Type I SS	Mean Square	F Value	Pr > F
T	14	37.30676742	2.66476910	176.31	<.0001
LnQ	1	75.30317703	75.30317703	4982.42	<.0001
LnPF	1	0.04776504	0.04776504	3.16	0.0797
LF	1	0.29499451	0.29499451	19.52	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
T	14	0.24725125	0.01766080	1.17	0.3178
LnQ	1	47.93302463	47.93302463	3171.48	<.0001
LnPF	1	0.02675904	0.02675904	1.77	0.1875
LF	1	0.29499451	0.29499451	19.52	<.0001

Parameter	Estimate		Standard Error	t Value	Pr > |t|
Intercept	22.53678445	B	4.94053826	4.56	<.0001
T 1	-2.04096367	B	0.73469041	-2.78	0.0070
T 2	-1.95872954	B	0.72275187	-2.71	0.0084
T 3	-1.88103769	B	0.72036547	-2.61	0.0110
T 4	-1.79600992	B	0.69882566	-2.57	0.0122
T 5	-1.33693575	B	0.50604558	-2.64	0.0101
T 6	-1.12514656	B	0.40862234	-2.75	0.0075
T 7	-1.03341601	B	0.37641681	-2.75	0.0076
T 8	-0.88273866	B	0.32601349	-2.71	0.0085
T 9	-0.70719587	B	0.29470154	-2.40	0.0190
T 10	-0.42296351	B	0.16678941	-2.54	0.0134

The SAS System

The GLM Procedure

Dependent Variable: LnC

Parameter	Estimate		Standard Error	t Value	Pr > |t|
T 11	-0.07143815	B	0.07176388	-1.00	0.3228
T 12	0.11457178	B	0.09841217	1.16	0.2482
T 13	0.07978953	B	0.08441708	0.95	0.3477
T 14	0.01546270	B	0.07263977	0.21	0.8320
T 15	0.00000000	B	.	.	.
LnQ	0.86772671		0.01540820	56.32	<.0001
LnPF	-0.48448499		0.36410896	-1.33	0.1875
LF	-1.95440278		0.44237789	-4.42	<.0001

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

The SAS System

The PANEL Procedure
Fixed Two Way Estimates

Dependent Variable: LnC

Model Description	
Estimation Method	FixTwo
Number of Cross Sections	6
Time Series Length	15

Fit Statistics			
SSE	0.1768	**DFE**	67
MSE	0.0026	**Root MSE**	0.0514
R-Square	0.9984		

F Test for No Fixed Effects			
Num DF	**Den DF**	**F Value**	**Pr > F**
19	67	23.10	<.0001

Parameter Estimates							
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Label**	
CS1	1	0.174282	0.0861	2.02	0.0470	Cross Sectional Effect 1	
CS2	1	0.111451	0.0780	1.43	0.1575	Cross Sectional Effect 2	
CS3	1	-0.14351	0.0519	-2.77	0.0073	Cross Sectional Effect 3	
CS4	1	0.180209	0.0321	5.61	<.0001	Cross Sectional Effect 4	
CS5	1	-0.04669	0.0225	-2.08	0.0415	Cross Sectional Effect 5	
TS1	1	-0.69314	0.3378	-2.05	0.0441	Time Series Effect	1
TS2	1	-0.63843	0.3321	-1.92	0.0588	Time Series Effect	2
TS3	1	-0.5958	0.3294	-1.81	0.0750	Time Series Effect	3
TS4	1	-0.54215	0.3189	-1.70	0.0938	Time Series Effect	4
TS5	1	-0.47304	0.2319	-2.04	0.0454	Time Series Effect	5
TS6	1	-0.4272	0.1884	-2.27	0.0266	Time Series Effect	6
TS7	1	-0.39598	0.1733	-2.28	0.0255	Time Series Effect	7
TS8	1	-0.33985	0.1501	-2.26	0.0268	Time Series Effect	8
TS9	1	-0.27189	0.1348	-2.02	0.0477	Time Series Effect	9
TS10	1	-0.22739	0.0763	-2.98	0.0040	Time Series Effect	10
TS11	1	-0.1118	0.0319	-3.50	0.0008	Time Series Effect	11
TS12	1	-0.03364	0.0429	-0.78	0.4357	Time Series Effect	12
TS13	1	-0.01773	0.0363	-0.49	0.6263	Time Series Effect	13
TS14	1	-0.01865	0.0305	-0.61	0.5432	Time Series Effect	14
Intercept	1	12.94003	2.2182	5.83	<.0001	Intercept	
LnQ	1	0.817249	0.0319	25.66	<.0001		

The SAS System

The PANEL Procedure
Fixed Two Way Estimates

Dependent Variable: LnC

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
LnPF	1	0.168611	0.1635	1.03	0.3061	
LF	1	-0.88281	0.2617	-3.37	0.0012	LF

The SAS System

The PANEL Procedure
Fixed Two Way Estimates

Dependent Variable: LnC

The SAS System

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
I	6	1 2 3 4 5 6

Number of Observations Read	90
Number of Observations Used	90

The SAS System

The GLM Procedure

Dependent Variable: LnC

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	113.8334745	12.6481638	4878.27	<.0001
Error	80	0.2074205	0.0025928		
Corrected Total	89	114.0408949			

R-Square	Coeff Var	Root MSE	LnC Mean
0.998181	0.380971	0.050919	13.36561

Source	DF	Type I SS	Mean Square	F Value	Pr > F
I	5	74.67988205	14.93597641	5760.66	<.0001
T	1	37.04535058	37.04535058	14288.0	<.0001
LnQ	1	1.77269607	1.77269607	683.71	<.0001
LnPF	1	0.24785009	0.24785009	95.59	<.0001
LF	1	0.08769566	0.08769566	33.82	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
I	5	1.00530261	0.20106052	77.55	<.0001
T	1	0.08520174	0.08520174	32.86	<.0001
LnQ	1	1.98661027	1.98661027	766.22	<.0001
LnPF	1	0.29639161	0.29639161	114.32	<.0001
LF	1	0.08769566	0.08769566	33.82	<.0001

Parameter	Estimate		Standard Error	t Value	Pr > |t|
Intercept	10.96623126	B	0.30295082	36.20	<.0001
I 1	0.15821509	B	0.08317973	1.90	0.0608
I 2	0.09117379	B	0.07470990	1.22	0.2259
I 3	-0.15446969	B	0.04904382	-3.15	0.0023
I 4	0.17418230	B	0.03099955	5.62	<.0001
I 5	-0.04521319	B	0.02047705	-2.21	0.0301
I 6	0.00000000	B	.	.	.
T	0.03295913		0.00574953	5.73	<.0001
LnQ	0.82800122		0.02991269	27.68	<.0001
LnPF	0.28419235		0.02658032	10.69	<.0001
LF	-0.99653593		0.17135025	-5.82	<.0001

The SAS System

The GLM Procedure

Dependent Variable: LnC

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

The SAS System

The PANEL Procedure
Fixed One Way Estimates Time-Wise

Dependent Variable: LnC

Model Description	
Estimation Method	FixOneTm
Number of Cross Sections	6
Time Series Length	15

Fit Statistics			
SSE	1.0882	**DFE**	72
MSE	0.0151	**Root MSE**	0.1229
R-Square	0.9905		

F Test for No Fixed Effects			
Num DF	**Den DF**	**F Value**	**Pr > F**
14	72	1.17	0.3178

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
TS1	1	-2.04096	0.7347	-2.78	0.0070	Time Series Effect 1
TS2	1	-1.95873	0.7228	-2.71	0.0084	Time Series Effect 2
TS3	1	-1.88104	0.7204	-2.61	0.0110	Time Series Effect 3
TS4	1	-1.79601	0.6988	-2.57	0.0122	Time Series Effect 4
TS5	1	-1.33694	0.5060	-2.64	0.0101	Time Series Effect 5
TS6	1	-1.12515	0.4086	-2.75	0.0075	Time Series Effect 6
TS7	1	-1.03342	0.3764	-2.75	0.0076	Time Series Effect 7
TS8	1	-0.88274	0.3260	-2.71	0.0085	Time Series Effect 8
TS9	1	-0.7072	0.2947	-2.40	0.0190	Time Series Effect 9
TS10	1	-0.42296	0.1668	-2.54	0.0134	Time Series Effect 10
TS11	1	-0.07144	0.0718	-1.00	0.3228	Time Series Effect 11
TS12	1	0.114572	0.0984	1.16	0.2482	Time Series Effect 12
TS13	1	0.07979	0.0844	0.95	0.3477	Time Series Effect 13
TS14	1	0.015463	0.0726	0.21	0.8320	Time Series Effect 14

The SAS System

The PANEL Procedure
Fixed One Way Estimates Time-Wise

Dependent Variable: LnC

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Pr > |t|	Label
Intercept	1	22.53678	4.9405	4.56	<.0001	Intercept
LnQ	1	0.867727	0.0154	56.32	<.0001	
LnPF	1	-0.48448	0.3641	-1.33	0.1875	
LF	1	-1.9544	0.4424	-4.42	<.0001	LF

The SAS System

The PANEL Procedure
Fixed One Way Estimates Time-Wise

Dependent Variable: LnC

The SAS System

I	Nobs	Variable	MEAN
1	15	LNQ	0.31927
		LNPF	12.73180
		LF	0.59719
2	15	LNQ	-0.03303
		LNPF	12.75171
		LF	0.54709
3	15	LNQ	-0.91226
		LNPF	12.78972
		LF	0.58454
4	15	LNQ	-1.63517
		LNPF	12.77803
		LF	0.54768
5	15	LNQ	-2.28568
		LNPF	12.79210
		LF	0.56649
6	15	LNQ	-2.49898
		LNPF	12.77880
		LF	0.51978
All	90	LNQ	-1.17431
		LNPF	12.77036
		LF	0.56046

The LSDV estimates are

Table1		
	BETA_LSDV	**SE**
LNQ	0.9193	0.0299
LNPF	0.4175	0.0152
LF	-1.0704	0.2017

Table2		
	ALPHA	**SE**
ALPHA1	9.7059	0.1931
ALPHA2	9.6647	0.1990
ALPHA3	9.4970	0.2250
ALPHA4	9.8905	0.2418
ALPHA5	9.7300	0.2609
ALPHA6	9.7930	0.2637

The SAS System

The PANEL Procedure
Fixed One Way Estimates

Dependent Variable: LnC

Model Description	
Estimation Method	FixOne
Number of Cross Sections	6
Time Series Length	15

Fit Statistics			
SSE	0.2926	**DFE**	81
MSE	0.0036	**Root MSE**	0.0601
R-Square	0.9974		

F Test for No Fixed Effects			
Num DF	**Den DF**	**F Value**	**Pr > F**
5	81	57.73	<.0001

Parameter Estimates						
Variable	**DF**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**	**Label**
CS1	1	-0.08706	0.0842	-1.03	0.3042	Cross Sectional Effect 1
CS2	1	-0.1283	0.0757	-1.69	0.0941	Cross Sectional Effect 2
CS3	1	-0.29598	0.0500	-5.92	<.0001	Cross Sectional Effect 3
CS4	1	0.097494	0.0330	2.95	0.0041	Cross Sectional Effect 4
CS5	1	-0.06301	0.0239	-2.64	0.0100	Cross Sectional Effect 5
Intercept	1	9.793004	0.2637	37.14	<.0001	Intercept
LnQ	1	0.919285	0.0299	30.76	<.0001	
LnPF	1	0.417492	0.0152	27.47	<.0001	
LF	1	-1.0704	0.2017	-5.31	<.0001	LF

The SAS System

The PANEL Procedure
Fixed One Way Estimates

Dependent Variable: LnC

The SAS System

The GLM Procedure

Class Level Information		
Class	**Levels**	**Values**
I	6	1 2 3 4 5 6

Number of Observations Read	90
Number of Observations Used	90

The SAS System

The GLM Procedure

Dependent Variable: LnC

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	113.7482727	14.2185341	3935.80	<.0001
Error	81	0.2926222	0.0036126		
Corrected Total	89	114.0408949			

R-Square	Coeff Var	Root MSE	LnC Mean
0.997434	0.449699	0.060105	13.36561

Source	DF	Type I SS	Mean Square	F Value	Pr > F
I	5	74.67988205	14.93597641	4134.39	<.0001
LnQ	1	36.33305337	36.33305337	10057.3	<.0001
LnPF	1	2.63358517	2.63358517	729.00	<.0001
LF	1	0.10175213	0.10175213	28.17	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
I	5	1.04281997	0.20856399	57.73	<.0001
LnQ	1	3.41718518	3.41718518	945.90	<.0001
LnPF	1	2.72571947	2.72571947	754.50	<.0001
LF	1	0.10175213	0.10175213	28.17	<.0001

Parameter	Estimate		Standard Error	t Value	Pr > |t|
Intercept	9.793003883	B	0.26366188	37.14	<.0001
I 1	-0.087061966	B	0.08419945	-1.03	0.3042
I 2	-0.128297833	B	0.07572803	-1.69	0.0941
I 3	-0.295983079	B	0.05002302	-5.92	<.0001
I 4	0.097494011	B	0.03300923	2.95	0.0041
I 5	-0.063006988	B	0.02389185	-2.64	0.0100
I 6	0.000000000	B	.	.	.
LnQ	0.919284650		0.02989007	30.76	<.0001
LnPF	0.417491776		0.01519912	27.47	<.0001
LF	-1.070395844		0.20168974	-5.31	<.0001

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: LnC

Number of Observations Read	90
Number of Observations Used	90

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	112.70545	37.56848	2419.34	<.0001
Error	86	1.33544	0.01553		
Corrected Total	89	114.04089			

Root MSE	0.12461	**R-Square**	0.9883
Dependent Mean	13.36561	**Adj R-Sq**	0.9879
Coeff Var	0.93234		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	9.51692	0.22924	41.51	<.0001
LnQ		1	0.88274	0.01325	66.60	<.0001
LnPF		1	0.45398	0.02030	22.36	<.0001
LF	LF	1	-1.62751	0.34530	-4.71	<.0001

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: LnC

The SAS System

The FREQ Procedure

I				
I	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	15	16.67	15	16.67
2	15	16.67	30	33.33
3	15	16.67	45	50.00
4	15	16.67	60	66.67
5	15	16.67	75	83.33
6	15	16.67	90	100.00

T				
T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	6	6.67	6	6.67
2	6	6.67	12	13.33
3	6	6.67	18	20.00
4	6	6.67	24	26.67
5	6	6.67	30	33.33
6	6	6.67	36	40.00
7	6	6.67	42	46.67
8	6	6.67	48	53.33
9	6	6.67	54	60.00
10	6	6.67	60	66.67
11	6	6.67	66	73.33
12	6	6.67	72	80.00
13	6	6.67	78	86.67
14	6	6.67	84	93.33
15	6	6.67	90	100.00

The SAS System

The CONTENTS Procedure

Data Set Name	WORK.WEEK4	**Observations**	90
Member Type	DATA	**Variables**	9
Engine	V9	**Indexes**	0
Created	Sat, Feb 02, 2013 12:42:08 PM	**Observation Length**	72
Last Modified	Sat, Feb 02, 2013 12:42:08 PM	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	1816
Obs in First Data Page	90
Number of Data Set Repairs	0
Filename	/saswork/SAS_workB97E000013CC_oda02au/SAS_work1501000013CC_oda02au/week4.sas7bdat
Release Created	9.0301M1
Host Created	Linux
Inode Number	38535179
Access Permission	rw-r--r--
Owner Name	danielprusinski
File Size (bytes)	262144

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Label
3	C	Num	8	BEST12.	C
1	I	Num	8	BEST12.	I
6	LF	Num	8	BEST12.	LF
7	LnC	Num	8		
9	LnPF	Num	8		
8	LnQ	Num	8		
5	PF	Num	8	BEST12.	PF
4	Q	Num	8	BEST12.	Q
2	T	Num	8	BEST12.	T

The SAS System

Obs	I	T	C	Q	PF	LF	LnC	LnQ	LnPF
1	1	1	1140640	0.952757	106650	0.534487	13.9471	-0.04840	11.5773
2	1	2	1215690	0.986757	110307	0.532328	14.0108	-0.01333	11.6110
3	1	3	1309570	1.09198	110574	0.547736	14.0852	0.08799	11.6134
4	1	4	1511530	1.17578	121974	0.540846	14.2286	0.16193	11.7116
5	1	5	1676730	1.16017	196606	0.591167	14.3324	0.14857	12.1890
6	1	6	1823740	1.17376	265609	0.575417	14.4164	0.16021	12.4898
7	1	7	2022890	1.29051	263451	0.594495	14.5200	0.25504	12.4816
8	1	8	2314760	1.39067	316411	0.597409	14.6548	0.32979	12.6648
9	1	9	2639160	1.61273	384110	0.638522	14.7860	0.47793	12.8587
10	1	10	3247620	1.82544	569251	0.676287	14.9934	0.60182	13.2521
11	1	11	3787750	1.54604	871636	0.605735	15.1473	0.43570	13.6781
12	1	12	3867750	1.5279	997239	0.61436	15.1682	0.42389	13.8127
13	1	13	3996020	1.6602	938002	0.633366	15.2008	0.50694	13.7515
14	1	14	4282880	1.82231	859572	0.650117	15.2701	0.60010	13.6642
15	1	15	4748320	1.93646	823411	0.625603	15.3733	0.66086	13.6212
16	2	1	569292	0.520635	103795	0.490851	13.2521	-0.65271	11.5502
17	2	2	640614	0.534627	111477	0.473449	13.3702	-0.62619	11.6216
18	2	3	777655	0.655192	118664	0.503013	13.5640	-0.42283	11.6841
19	2	4	999294	0.791575	114797	0.512501	13.8148	-0.23373	11.6509
20	2	5	1203970	0.842945	215322	0.566782	14.0011	-0.17085	12.2799