

The SSM Procedure

Input Data Set	
Name	WORK.UKW

Model Summary	
Model Property	Value
Number of Model Equations	1
State Dimension	4
Dimension of the Diffuse Initial Condition	4
Number of Parameters	3

ID Variable Information					
Name	Start	End	Max Delta	NDistinct	Type
date	1947:1	2011:4	1	260	Regular

Response Variable Information							
Name	Number of Observations			Minimum	Maximum	Mean	Std Deviation
	Total	Missing	Induced Missing				
Weddings	260	0	0	25.6	146	83	28.1

Model Parameter Estimates					
Component	Type	Parameter	Estimate	Standard Error	t Value
season	Disturbance Covariance	Cov[1, 1]	4.03	0.807	4.99
level	RW Trend	Level Variance	2.08	0.486	4.27
wn	Irregular	Variance	0.00	3.169	0.00

Likelihood optimization algorithm converged in 9 iterations.

Likelihood Computation Summary	
Statistic	Value
Nonmissing Response Values Used	260
Estimated Parameters	3
Initialized Diffuse State Elements	4
Normalized Residual Sum of Squares	256.00004
Diffuse Log Likelihood	-835.4237
Profile Log Likelihood	-841.3314

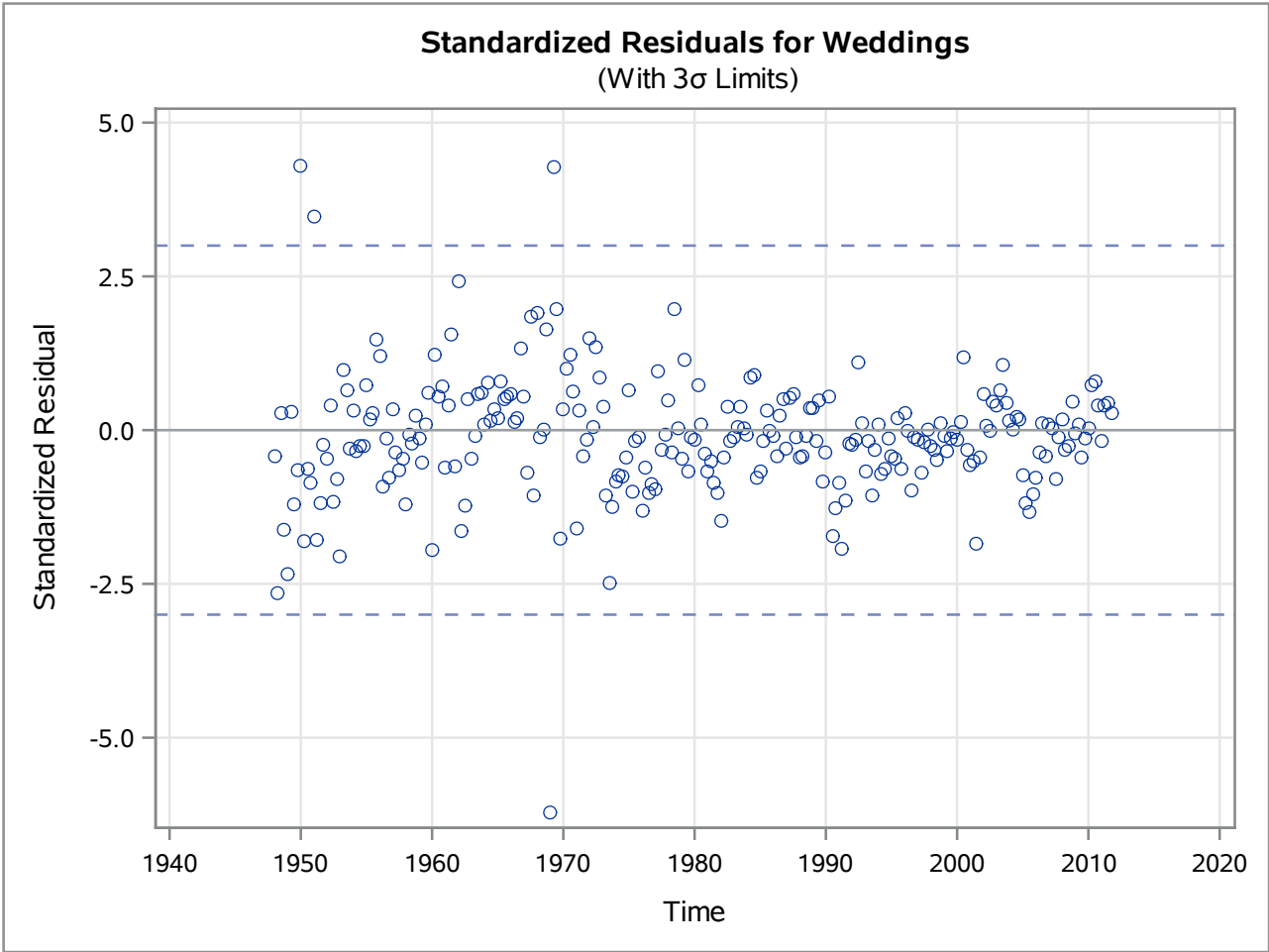
The SSM Procedure

Information Criteria		
Statistic	Diffuse Likelihood Based	Profile Likelihood Based
AIC (lower is better)	1676.8475	1696.6629
BIC (lower is better)	1687.4830	1721.5876
AICC (lower is better)	1676.9427	1697.1073
HQIC (lower is better)	1681.1251	1706.6830
CAIC (lower is better)	1690.4830	1728.5876

Additive Outlier Summary						
Obs	ID	Response Variable	Estimate	Standard Error	Chi-Square	Pr > ChiSq
85	1968:1	Weddings	23.8	4.42	29.11	<.0001
9	1949:1	Weddings	-19.6	4.42	19.65	<.0001
89	1969:1	Weddings	-19.4	4.42	19.21	<.0001

Delete-One Cross Validation Error Criteria			
Variable	N	PRESS	Generalized Cross-Validation
Weddings	260	5235.708	0.07478267

The SSM Procedure



Elementwise Break Summary for season			
ID	Element Index	Z Value	Pr > z
1968:3	3	-5.86	<.0001
1968:4	3	5.35	<.0001
1969:1	1	-5.13	<.0001

The SSM Procedure

Input Data Set	
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Model Summary	
Model Property	Value
Number of Model Equations	1
State Dimension	4
Dimension of the Diffuse Initial Condition	4
Number of Parameters	4

ID Variable Information					
Name	Start	End	Max Delta	NDistinct	Type
date	1947:1	2011:4	1	260	Regular

Response Variable Information							
Name	Number of Observations			Minimum	Maximum	Mean	Std Deviation
	Total	Missing	Induced Missing				
Weddings	260	0	0	25.6	146	83	28.1

Estimates of Named Parameters			
Parameter	Estimate	Standard Error	t Value
v1	2.66	0.559	4.77
v2	353.99	298.822	1.18

Model Parameter Estimates					
Component	Type	Parameter	Estimate	Standard Error	t Value
level	RW Trend	Level Variance	2.2124	0.494	4.48
wn	Irregular	Variance	0.0114	2.326	0.00

Likelihood optimization algorithm converged in 17 iterations.

The SSM Procedure

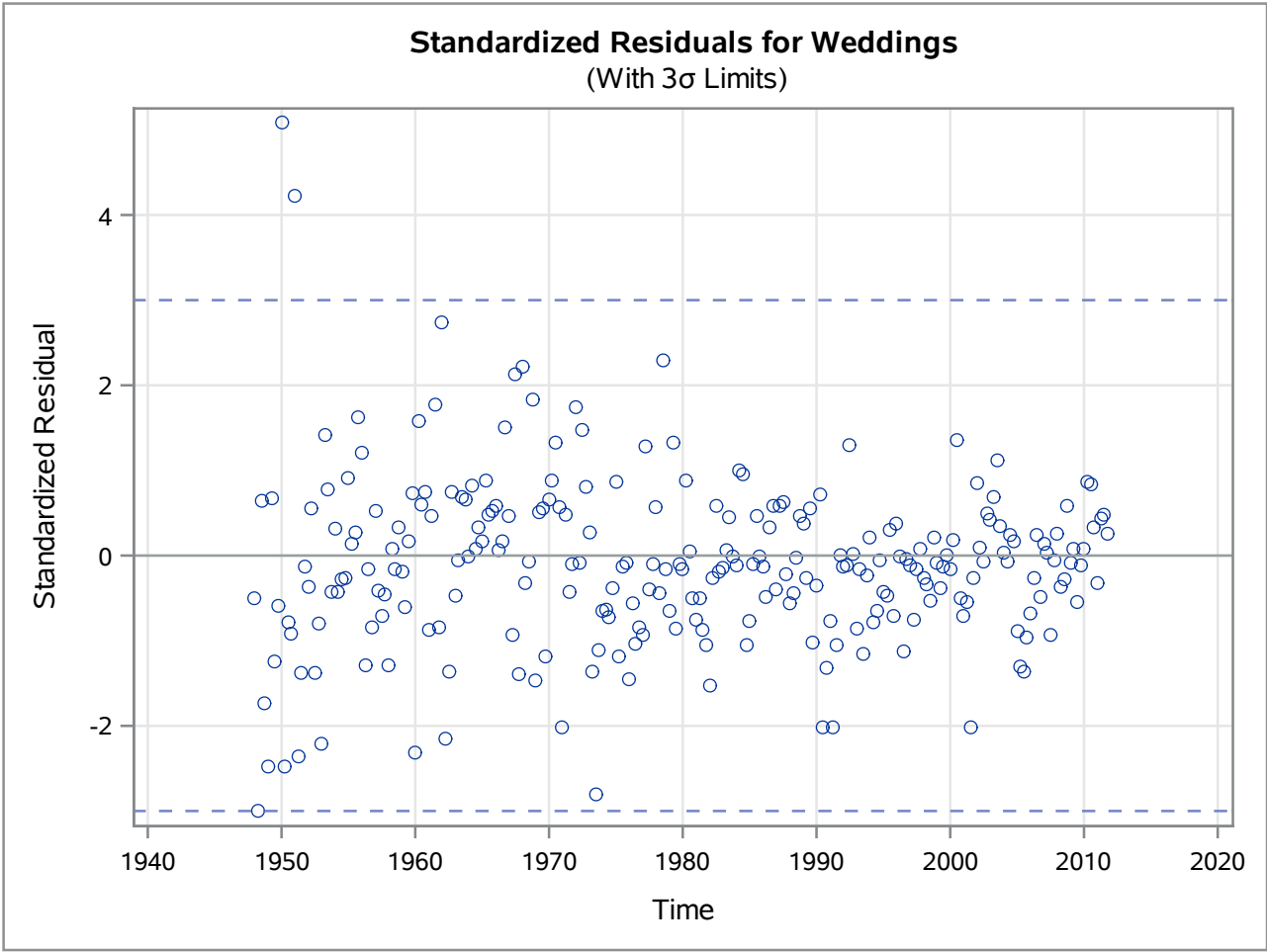
Likelihood Computation Summary	
Statistic	Value
Nonmissing Response Values Used	260
Estimated Parameters	4
Initialized Diffuse State Elements	4
Normalized Residual Sum of Squares	256.00007
Diffuse Log Likelihood	-803.648
Profile Log Likelihood	-809.1236

Information Criteria		
Statistic	Diffuse Likelihood Based	Profile Likelihood Based
AIC (lower is better)	1615.2960	1634.2473
BIC (lower is better)	1629.4767	1662.7327
AICC (lower is better)	1615.4553	1634.8210
HQIC (lower is better)	1620.9994	1645.6988
CAIC (lower is better)	1633.4767	1670.7327

Additive Outlier Summary						
Obs	ID	Response Variable	Estimate	Standard Error	Chi-Square	Pr > ChiSq
9	1949:1	Weddings	-19.9	3.84	27.01	<.0001
17	1951:1	Weddings	12.3	3.84	10.30	0.0013
103	1972:3	Weddings	11.3	3.84	8.70	0.0032

Delete-One Cross Validation Error Criteria			
Variable	N	PRESS	Generalized Cross-Validation
Weddings	260	4262.008	0.05820099

The SSM Procedure



Elementwise Break Summary for season			
ID	Element Index	Z Value	Pr > z
1949:2	2	-4.75	<.0001
1949:3	1	-4.75	<.0001
1949:4	2	4.37	<.0001

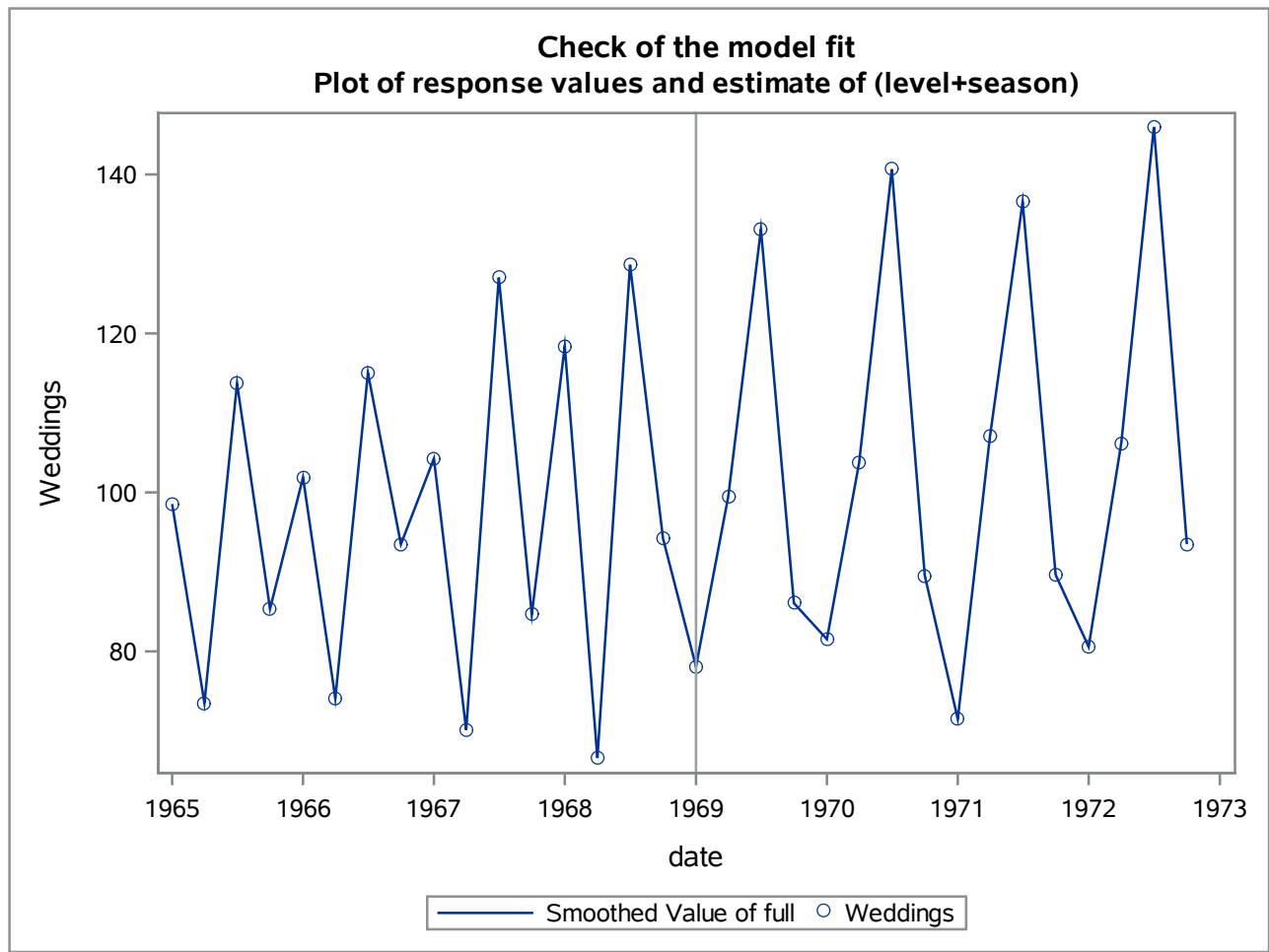


Figure 4.6: Change in the Seasonal behavior starting at Q1 of 1969
Blue circles indicate first quarters

