16. Once the output settings are introduced, click the OK button.

Csv	E Location	
Excel	folder	
Txt	File Name	demetra_m
SV matrix	🖂 Content	
	items	[span.start, span

Figure 3.106: Options for the *Csv matrix* output.

17. For each output format JDemetra+ informs about the status of the operation. An exemplary message in presented below.



Figure 3.107: Generating output process result.

3.2.2.2. Revision policies

The saved results from the seasonal adjustment multi-process can be refreshed when new or modified observations are available. JDemetra+ offers several options for refreshing the output, which are in line with the *ESS Guidelines on Seasonal Adjustment* (2015) requirements.

 To refresh the results open previously saved workspace using the path *File* → *Open Workspace*. Choose the multi-document from the *Workspace* window (see 2.1.1) and double click on it to display the multi-document menu (*SAProcessing*).

orkspace % Providers	SAProcessing-1 %	riv 10	🛤 • TS	[DSA4]			Specification
Modelling	Series	Method	Estimation	Status	Pri	Quality	Wa
	Europe - Euro area (12 coun	RSA4	Concurr	Unproce		Good	
the documents	Europe - Belgium [frozen]	RSA4	Concurr	Unproce		Good	
B multi-documents	Europe - Czech Republic [fro	RSA4	Concurr	Unproce		Good	
SAProcessing-1	Europe - Denmark [frozen]	RSA4	Concurr	Unproce		Good	
Utilities	Europe - Ireland [frozen]	RSA4	Concurr	Unproce		Good	
	Asia - Japan [frozen]	RSA5	Concurr	Unproce		Good	
	North America - United State	RSA5c	Concurr	Unproce		Good	
	North America - United State,.	RSA5	Concurr	Unproce		Good	

Figure 3.108: Opening a multi-document.

2. Several refreshment options are available.

File Statistical methods SA	Processing-1 View To	ols Window Help						Q- Searc	h (Ctrl+I)
Hand Its views	Default specification								
Providers Workspa	Start				1				4
My Workspace	Refresh	Partial concurrent adjustment	Fixed model						Specification
Here Modelling	Accept	Concurrent	Estimate reg	ression coefficients	Status	Priority	Quality	Warnings	Comments
s Seasonal adjustme	Edit	Interview In	+ Arima par	ameters	Valid	ritority	Good	(Taning)	Commento
documents	Clear selection	construction ► Bulgaria [frozen]	+ Last outlie	rs	Valid		Good		
🖨 🛅 multi-documen	specifications documents Clear selection multi-documen SAProcess Priority	Fonstruction ► Czech Republic [frozen]	+ All outlier	5	Valid		Good		l.
SAProcess	Priority	▶ construction ▶ Denmark [frozen]	+ Arima mo	del	Valid		Severe		
	InitialOrder	tonstruction Germany [frozen]	RSA5c	Concurrent	Valid		Good		
	Outrat	construction France [#ozen]	RSASC	Concurrent	Valid		Good		
L	Report Edit comments	Production in construction Pre-processing (RegArima) Summary Estimation span: [1-2000 - 4-2015] 184 observations 2000-07 2005-07	► Romania [fr → Romania [fr → Romania [fr → Romania [fr → Romania [fr → Romania [fr → Romania [fr	02en] 444444 2010	5-0; 0,5 5-0; jan	feb mar apr	may jun	jul aug sep	oct nov dec

Figure 3.109: The Refresh menu.

The meaning of the consecutive options is presented in the following table.

Option	Meaning
Partial concurrent adjustment \rightarrow Fixed model	The ARIMA model, outliers and other regression parameters are not re-identified and the values of all parameters are fixed. The transformation type remains unchanged.

Partial concurrent adjustment \rightarrow Estimate regression coefficients	The ARIMA model, outliers and other regression parameters are not re-identified. The coefficients of the ARIMA model are fixed, other coefficients are re-estimated. The transformation type remains unchanged.
Partial concurrent adjustment \rightarrow Estimate regression coefficients + Arima parameters	The ARIMA model, outliers and other regression parameters are not re-identified. All parameters of the RegARIMA model are re-estimated. The transformation type remains unchanged.
Partial concurrent adjustment \rightarrow Estimate regression coefficients + Last outliers	The ARIMA model, outliers (except from the outliers in the last year of the sample) and other regression parameters are not re-identified. All parameters of the RegARIMA model are re-estimated. The outliers in the last year of the sample are re-identified. The transformation type remains unchanged.
Partial concurrent adjustment \rightarrow Estimate regression coefficients + all outliers	The ARIMA model and regression parameters, except from outliers) are not re-identified. All parameters of the RegARIMA model are re- estimated. All outliers are re-identified. The transformation type remains unchanged.
Partial concurrent adjustment \rightarrow Estimate regression coefficients + Arima model	Re-identification of the ARIMA model, outliers and regression variables, except from the calendar variables. The transformation type remains unchanged.
Concurrent	Re-identification of all the RegARIMA model.

3.2.2.1. Partial concurrent adjustment

According to the *ESS Guidelines on Seasonal Adjustment* (2015), partial concurrent adjustment is the strategy in which the model, filters, outliers and calendar regressors are re-identified once a year and the respective parameters and factors re-estimated every time a new or revised data become available. JDemetra+ offers several types of partial concurrent adjustment.

3.2.2.2.1.1. Partial concurrent adjustment \rightarrow Fixed model

The *Partial concurrent adjustment* \rightarrow *Fixed model* strategy means that the ARIMA model, outliers and other regression parameters are not re-identified and the values of the parameters are fixed. In particular, no new outliers or calendar variables are added to the model as well as no changes neither in the calendar variables nor in the outliers' types are allowed. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Fixed model* option (on the right). The parameters of the ARIMA part are not estimated and their values are the same as before. The trading days and outliers are fixed too and no new regression effects are identified.

Summary				Summary				
Estimation span: [7-1996 - 12-2 246 observations Trading days effects (7 variab Easter [8] detected 5 detected outliers	2016] les)			Estimation span: [7-1996 - 7-2017] 253 observations Fixed Trading days effects (7 variables) Fixed Easter [8] effect 5 fixed outliers				
Final model				Final model				
Likelihood statistics Number of effective observation Number of estimated parameter	ons = 233 rs = 16			Likelihood statistics Number of effective obs Number of estimated pa	servations = 240 rameters = 1			
Loglikelihood = -559.66167178 Standard error of the regressic AIC = 1151.3233435738325 AICC = 1153.841862092351 BIC (corrected for length) = 2.3	69163 on (ML estimate) = 2. 814356746231504	6690317386745(05	Loglikelihood = -692.438 Standard error of the re AIC = 1386.8771393483 AICC = 1386.89394607 BIC (corrected for lengt	5696741856 gression (ML estimate) = 1712 10603 h) = 2.929867505742201	4.3272565624818 2	312	
Scores at the solution -0,000004 -0,000414 -				Arima model [(0,1,1)(1,1,0)].				
Arima model [(0,1,1)(1,1,0)].				Theta(1) BPhi(1)	Coefficients -0,4902 0,1680	T-Stat	P[T > t]	
Theta(1) BPhi(1)	-0,4902 0,1680	-8,33 2,45	0,0000 0,0152	Regression model Fixed calendar effects				
Correlation of the estimates Theta(1) BPhi(1) Theta(1) 1,0000 0,074 BPhi(1) 0,0784 1,000	1) 34 00			Monday Tuesday Wednesday Thursday Friday Saturday Leap year	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 2,6712			
Regression model Trading days				Fixed moving holidays e	ffects			
Monday Tuesday	Coefficients -0,5102 0,2288	T-Stat -1,92 0,88	P[T > t] 0,0562 0,3774	Easter [8]	Coefficients 1,6759			
Wednesday Thursday	0,1073 0,2028	0,40 0,75	0,6905 0,4536	Fixed outliers	Coefficients			
Friday Saturday Sunday (derived)	0,9280 -0,3434 -0,6134	3,48 -1,27 -2,28	0,0006 0,2071 0,0235	AO (4-2004) LS (1-2001) AO (4-2010)	19,8713 -8,5643 -8,7157			
Joint F-Test = 8,13 (0,0000)	200001001322911		100 M 000 000 000 000 000 000 000 000 00	AO (3-2004) AO (12-2003)	8,6114 7,2918			

Figure 3.110: A *Partial concurrent adjustment* \rightarrow *fixed model* revision policy results.

3.2.2.2.1.2. Partial concurrent adjustment → Estimate regression coefficients

The Partial current adjustment \rightarrow Estimate regression coefficients option means that the ARIMA model, outliers and other regression parameters are not re-identified. The coefficients of the ARIMA model are fixed, other coefficients are re-estimated. In particular, no new outliers or calendar variables are added to the model as well as no changes neither in the calendar variables nor in the outliers' types are allowed. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Estimate regression coefficients* option (on the right). The number of estimated parameters is 16 in the initial model and 14 in the revised model (the parameters of the ARIMA model are not estimated.

Junnary				Summary			
stimation span: 17-1996 - 12-2	0161						
246 observations	.010]			Estimation span: [7-1996 - 7	-2017]		
Frading days effects (7 variabl	es)			253 observations	(ablas)		
aster [8] detected				Faster [8] detected	lables)		
detected outliers				_ 5 pre-specified outliers			
Final model				Final model			
ikelihood statistics				Likelihood statistics			
lumber of effective observatio	ns = 233			Number of effective observ	ations = 240		
number of estimated parameter	rs = 16			Number of estimated param	eters = 14		
.oglikelihood = -559.661671786	59163			Loolikelihood = -665 967139	0063976		
Standard error of the regressio	on (ML estimate) = 2	.6690317386745	05	Standard error of the regres	ssion (ML estimate) = 3	8753505572038	08
AIL = 1151.3233435738325				AIC = 1359.9342780127952			
BIC (corrected for length) = 2.3	14356746231504			AICC = 1361.800944679461	7		
Scores at the solution				Bic (corrected for length) =	3.0001401918583284		
0,000004 -0,000414 -				[(0,1,1)(1,1,0)].			
<u>vrima model</u>					Coefficients	T-Stat	P[IT] > t]
Construction.				Theta(1)	-0,4902		
(oefficients	T_Stat	PIITI > +1	BPhi(1)	0,1680		
Theta(1)	-0 4902	-8 22	0 0000				
BPhi(1)	0.1680	2 45	0.0152	Regression model			
2111(1)	0,1000	2,10	0,0102	Trading days	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	0.000125600	1.000.000
					Coefficients	T-Stat	P[T > t
Correlation of the estimates				Monday	-0,5065	-1,34	0,1819
2				Tuesday	0,3467	0,94	0,3463
Theta(1) BPhi(1	1)			Wednesday	0,1225	0,32	0,7479
Theta(1) 1.0000 0.078	34			Thursday	0,2916	0,75	0,4525
Theta(1) 1,0000 0,078 BPhi(1) 0.0784 1.000	34 10			Thursday Friday	0,2916 0,7808	0,75 2,07	0,4525
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000	84 10			Thursday Friday Saturday	0,2916 0,7808 -0,6722	0,75 2,07 -1,74	0,4525 0,0393 0,0840
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000	34 10			Thursday Friday Saturday Sunday (derived)	0,2916 0,7808 -0,6722 -0,3629	0,75 2,07 -1,74 -0,95	0,4525 0,0393 0,0840 0,3437
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model 1 1 Trading days 1 1	84 00			Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024	0,2916 0,7808 -0,6722 -0,3629	0,75 2,07 -1,74 -0,95	0,4525 0,0393 0,0840 0,3437
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model 1,000 1,000	Coefficients	T-Stat	P[[T] > t]	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024	0,2916 0,7808 -0,6722 -0,3629	0,75 2,07 -1,74 -0,95	0,4525 0,0393 0,0840 0,3437
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model rrading days	Coefficients -0,5102	T-Stat -1,92	P[[T] > t] 0,0562	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024	0,2916 0,7808 -0,6722 -0,3629	0,75 2,07 -1,74 -0,95	0,4525 0,0393 0,0840 0,3437
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Irading days Monday Tuesday	Coefficients -0,5102 0,2288	T-Stat -1,92 0,88	P[[T] > t] 0,0562 0,3774	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C	0,2916 0,7808 -0,6722 -0,3629) oefficients	0,75 2,07 -1,74 -0,95	0,4525 0,0393 0,0840 0,3437 P[[T] > t]
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Irading days Monday Tuesday Wednesday	Coefficients -0,5102 0,2288 0,1073	T-Stat -1,92 0,88 0,40	P[[T] > t] 0,0562 0,3774 0,6905	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721	0,75 2,07 -1,74 -0,95 T-Stat 1,23	0,4525 0,0393 0,0840 0,3437 P[[T] > t] 0,2218
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model rading days Monday Tuesday Wednesday Thursday	Coefficients -0,5102 0,2288 0,1073 0,2028	T-Stat -1,92 0,88 0,40 0,75	P[[T] > t] 0,0562 0,3774 0,6905 0,4536	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721	0,75 2,07 -1,74 -0,95 T-Stat 1,23	0,4525 0,0393 0,0840 0,3437 P[[T] > t] 0,2218
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model rrading days Monday Tuesday Wednesday Thursday Friday	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280	T-Stat -1,92 0,88 0,40 0,75 3,48	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721	0,75 2,07 -1,74 -0,95 T-Stat 1,23	0,4525 0,0393 0,0840 0,3437 P[[T] > t] 0,2218
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat	0,4525 0,0393 0,0840 0,3437 P[[T] > t] 0,2218 P[[T] > t]
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model rrading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived)	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 oefficients 1,5126	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01	0,4525 0,0393 0,0840 0,3437 P[[T] > t] 0,2218 P[[T] > t] 0,0451
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearression model rading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived)	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 oefficients 1,5126	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01	0,4525 0,0393 0,0844 0,3437 P[[T] > t] 0,2218 P[[T] > t] 0,0451
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearession model rading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived)	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat	0,4525 0,039; 0,0844 0,3431 P[[T] > t] 0,2218 P[[T] > t] 0,0451 P[[T] > t]
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model rrading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 8,13 (0,0000) .eap year	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004)	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 oefficients 1,5126 Coefficients 38,7128	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68	0,4525 0,0393 0,0844 0,3437 P[[T] > t 0,2218 P[[T] > t 0,0457 P[[T] > t 0,0457
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Incomparing the second secon	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1.92 0,88 0,40 0,75 3,48 -1.27 -2,28 T-Stat 3,07	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024	Thursday Friday Saturday Joint F-Test = 3,52 (0,0024 Leap vear C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001)	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28	0,452 0,039 0,084 0,084 0,084 0,084 0,084 0,084 0,021 0,045 0,045
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 8,13 (0,0000) .eap year	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap vear C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010)	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,8868	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27	0,4525 0,0393 0,0844 0,3437 P[[T] > t] 0,2216 P[[T] > t] 0,0451 P[[T] > t] 0,0000 0,0001 0,0001
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearression model Trading days Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 8,13 (0,0000) .eap year Coef	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C <u>Easter [8]</u> C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004)	0,2916 0,7808 -0,6722 -0,3629 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85	0,4525 0,0343 0,0844 0,3437 P[[T] > t] 0,2218 P[[T] > t] 0,0451 P[[T] > t] 0,0000 0,0012 0,0012 0,0048
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 fficients 2,6712	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t]	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,7841 -8,8868 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85 2,59	0,4525 0,0393 0,0844 0,3437 P[[T] > t] 0,2218 P[[T] > t] 0,0451 P[[T] > t] 0,00451 0,0000 0,0012 0,0044 0,0101
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearression model	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 fficients 2,6712 fficients 1,6759	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023	Thursday Friday Saturday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,7841 -8,8868 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85 2,59	0,4525 0,0343 0,0844 0,3437 P[[T] > t] 0,2218 P[[T] > t] 0,0451 P[[T] > t] 0,0050 0,0012 0,0044 0,0101
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearession model Income Image: Image of the state of the s	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 fficients 2,6712 fficients 1,6759	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07 T-Stat 3,08	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,8668 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,28 -3,28 -3,28 -3,28 2,59	0,452 0,030 0,064 0,343 P[[T] > t 0,2210 P[[T] > t 0,045 P[[T] > t 0,000 0,0012 0,0012
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearession model rading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Noint F-Test = 8,13 (0,0000) .eap year Coef	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 fficients 2,6712 fficients 1,6759 Coefficients	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07 T-Stat 3,08	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,7841 -8,7841 -8,8668 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85 2,59	0,452 0,030 0,064 0,343 P[[T] > t 0,2218 P[[T] > t 0,045' P[[T] > t 0,000 0,0012 0,0012 0,0014
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 tegression model	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 ficients 2,6712 ficients 1,6759 Coefficients 19,8713	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07 T-Stat 3,08 T-Stat 10,12	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [3] C A0 (4-2004) LS (1-2001) A0 (4-2010) A0 (3-2004) A0 (12-2003)	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,8868 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85 2,59	0,452 0,039 0,084 0,084 0,084 0,084 0,084 0,021 0,021 0,045 0,001 0,004 0,001 0,001 0,001 0,001
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 fficients 2,6712 fficients 1,6759 Coefficients 19,8713 -8,5643	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07 T-Stat 3,08 T-Stat 3,08	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023 P[[T] > t] 0,0000	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629)) oefficients 1,4721 0efficients 1,5126 Coefficients 38,7128 -8,7841 -8,8868 8,0340 6,9950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,27 2,85 2,59	0,452 0,039 0,084 0,343 P[[T] > t 0,211 P[[T] > t 0,045 P[[T] > t 0,000 0,001 0,001 0,001
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Rearression model Tuesday Wednesday Tuesday Wednesday Thursday Friday Sunday (derived) Ioint F-Test = 8,13 (0,0000) eap year Coef aster [8] Coef Dutliers AO (4-2004) LS (1-2001) AO (4-2010)	Coefficients -0,5102 0,2288 0,1073 0,2288 0,9280 -0,3434 -0,6134 ficients 2,6712 ficients 1,6759 Coefficients 19,8713 -8,5643 -8,7157	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 -2,28 T-Stat 3,07 T-Stat 3,08 T-Stat 3,08	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023 P[[T] > t] 0,0000	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,28 -3,28 -3,28 2,59	0,452 0,039 0,064 0,343 P[[T] > t 0,2216 P[[T] > t 0,045 0,0012 0,0012 0,0012
Theta(1) 1,0000 0,078 BPhi(1) 0,0784 1,000 Regression model Tuesday Wednesday Thursday Friday Saturday Saturday Saturday Saturday Coef aster [8] Coef 20tilers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004)	Coefficients -0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434 -0,6134 Ficients 2,6712 Ficients 1,6759 Coefficients 19,8713 -8,5643 -8,7157 8,6114	T-Stat -1,92 0,88 0,40 0,75 3,48 -1,27 2,28 T-Stat 3,07 T-Stat 3,08 T-Stat 10,12 -4,62 4,62 4,40	P[[T] > t] 0,0562 0,3774 0,6905 0,4536 0,0006 0,2071 0,0235 P[[T] > t] 0,0024 P[[T] > t] 0,0023 P[[T] > t] 0,0000 0,0000 0,0000	Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,52 (0,0024 Leap year C Easter [8] C Prespecified outliers AO (4-2004) LS (1-2001) AO (4-2010) AO (3-2004) AO (12-2003)	0,2916 0,7808 -0,6722 -0,3629) oefficients 1,4721 coefficients 1,5126 Coefficients 38,7128 -8,7841 -8,7841 -8,7841 -8,7841 -8,7841 -8,7841 -8,7841 -8,7848 -8,7950	0,75 2,07 -1,74 -0,95 T-Stat 1,23 T-Stat 2,01 T-Stat 13,68 -3,28 -3,27 2,85 2,59	0,452 0,039 0,064 0,343 P[[T] > t 0,2218 P[[T] > t 0,045' P[[T] > t 0,000 0,0012 0,0044 0,010'

Figure 3.111: The Partial concurrent adjustment \rightarrow Estimate regression coefficients revision policy results. 3.2.2.2.1.3. Partial concurrent adjustment \rightarrow Estimate regression coefficient + Arima parameters

The Partial concurrent adjustment \rightarrow Estimate regression coefficient + Arima parameters strategy means that the ARIMA model, outliers and other regression parameters are not re-identified. All

parameters of the RegARIMA model are re-estimated but the explanatory variables remain the same. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Estimate regression coefficient* + *Arima parameters* option (on the right). The parameters of the ARIMA part have been re-estimated and their values have been updated. Also regression coefficients have been re-estimated and the number of estimated coefficients in the revised model is the same as in the initial model (i.e. 16 estimated coefficients).

The structure of the model remains unchanged while all coefficients have been updated.

Summary				Summary			
Estimation span: [7-1996 - 246 observations Trading days effects (7 vai Easter [8] detected 5 detected outliers	i2-2016] riables)			Estimation span: (7-1996 - 253 observations Trading days effects (7 va Easter [8] detected 5 ore-specified outliers	7-2017] ariables)		
Final model				Final model			
Likelihood statistics Number of effective observ Number of estimated param Loglikelihood = -559.66167 Standard error of the regre AIC = 1151.323343573832 AICC = 1153.84186209235 BIC (corrected for length) = <u>Scores at the solution</u>	rations = 233 leters = 16 17869163 ssion (ML estimate) = 2 5 1 2.314356746231504	.6690317386745	05	Likelihood statistics Number of effective obser Number of estimated parar Logikelihood = -653.06146 Standard error of the regn AIC = 1338.122927910163 AICC = 1340.56238979357 BIC (corrected for length) Scores at the solution	vations = 240 meters = 16 339550819 ession (ML estimate) = 3 88 118 = 2.9418782672541677	3.6680829449758	84
-0,000004 -0,000414							
<u>Arima model</u> [(0,1,1)(1,1,0)].				<u>Arima model</u> [(0,1,1)(1,1,0)].			
	Coefficients	T-Stat	P[T > t]		Coefficients	T-Stat	P[T > t]
Theta(1)	-0,4902	-8,33	0,0000	Theta(1)	-0,2036	-3,12	0,0020
Correlation of the estimates				Correlation of the estimate	<u>s</u>		
Theta(1) B Theta(1) 1,0000 0 BPhi(1) 0,0784 1	Phi(1) ,0784 ,0000			Theta(1) E Theta(1) 1,0000 (BPhi(1) 0,0334 -	3Phi(1) 0,0334 1,0000		
Regression model Trading days				Regression model			52
	Coefficients	T-Stat	P[T > t]	10	Coefficients	T-Stat	P[T > t]
			0.0500	Monday	-0,5098	-1.54	0 1050
Monday	-0,5102	-1,92	0,0562				0,1252
Monday Tuesday	-0,5102 0,2288	-1,92 0,88	0,0562	Tuesday	0,4101	1,28	0,1252
Monday Tuesday Wednesday	-0,5102 0,2288 0,1073	-1,92 0,88 0,40	0,0562 0,3774 0,6905	Tuesday Wednesday	0,4101 0,1146	1,28 0,34	0,1252 0,2024 0,7327
Tuesday Wednesday Thursday	-0,5102 0,2288 0,1073 0,2028	-1,92 0,88 0,40 0,75	0,0562 0,3774 0,6905 0,4536	Tuesday Wednesday Thursday	0,4101 0,1146 0,2243	1,28 0,34 0,65	0,1252 0,2024 0,7327 0,5135
Monday Tuesday Wednesday Thursday Friday	-0,5102 0,2288 0,1073 0,2028 0,9280	-1,92 0,88 0,40 0,75 3,48	0,0562 0,3774 0,6905 0,4536 0,0006	Tuesday Wednesday Thursday Friday	0,4101 0,1146 0,2243 0,7773	1,28 0,34 0,65 2,32	0,1252 0,2024 0,7327 0,5135 0,0210
Monday Tuesday Wednesday Thursday Friday Saturday	-0,5102 0,2288 0,1073 0,2028 0,9280 -0,3434	-1,92 0,88 0,40 0,75 3,48 -1,27	0,0582 0,3774 0,6905 0,4536 0,0006 0,2071	Tuesday Wednesday Thursday Friday Saturday	0,4101 0,1146 0,2243 0,7773 -0,5492	1,28 0,34 0,65 2,32 -1,61	0,1252 0,2024 0,7327 0,5135 0,0210 0,1078

Joint F-Test = 8,13 (0,0000)

Joint F-Test = 5,80 (0,0000)

Figure 3.112: The Partial concurrent adjustment \rightarrow Estimate regression coefficient + Arima parameters revision policy results.

Partial concurrent adjustment \rightarrow

Partial concurrent adjustment **3.2.2.2.1.4.**

Estimate regression coefficient + Last outliers

The \rightarrow *Estimate regression coefficient* + *Last outliers* strategy means that the ARIMA model, outliers (except from the outliers in the last year of the sample) and other regression parameters are not re-identified. All parameters of the RegARIMA model are re-estimated. Software tests for the outliers in the last year of a data span and include in the model those which are statistically significant. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Estimate regression coefficient* + *Last outliers* option (on the right). The parameters of the ARIMA part have been re-estimated and their values have been updated. Also regression coefficients have been re-estimated. The number of estimated coefficients in the revised model is larger than the initial model because an additional outlier has been identified in the last year of a data span.

Summary				Summary			
Estimation span: [7-1996 - 246 observations Trading days effects (7 va Easter [8] detected 5 detected outliers	12-2016] riables)			Estimation span: [7-1996 - 7-2 253 observations Trading days effects (7 varial Easter [8] detected 5 pre-specified outliers	2017] bles)		
Final model				1 detected outlier			
Likelihood statistics Number of effective obsern Number of estimated paran Loglikelihood = -559.66167	vations = 233 neters = 16 17869163			Final model Likelihood statistics Number of effective observat Number of estimated paramet	tions = 240 ters = 17		
Standard error of the regre AIC = 1151.3233435738329 AICC = 1153.84186209235 BIC (corrected for length) =	xssion (ML estimate) = 2 5 1 = 2.314356746231504	.6690317386745	05	Loglikelihood = -573.49526819 Standard error of the regress AIC = 1180.9905363901503 AICC = 1183.747293146907 BIC (corrected for length) = 2	950751 ;ion (ML estimate) = 2 :.3040470567397255	:.6361922969352	976
Scores at the solution -0,000004 -0,000414				<u>Scores at the solution</u> -0 000012 -0.000444			
<u>Arima modei</u> [(0,1,1)(1,1,0)].				Arima model [(0,1,1)(1,1,0)].			
and the second second	Coefficients	T-Stat	P[T > t]	1		1000100000000000	and the second s
Theta(1) BPhi(1)	-0,4902 0,1680	-8,33 2,45	0,0000 0,0152	Theta(1) BPhi(1)	Coefficients -0,4908 0.1679	T-Stat -8,49 2.53	P[T > t] 0,0000 0,0120
Correlation of the estimates	<u>s</u>			Correlation of the estimates	50-20202000	20 forses	Striburger.ver
Theta(1) 1,0000 0 BPhi(1) 0,0784 1	,0784 ,0000			Theta(1) BPhi Theta(1) 1,0000 0,06 BPhi(1) 0,0615 1,00	i(1) 615 000		
Regression model Trading days				Regression model			
Monday	Coefficients	T-Stat -1.92	P[T > t] 0.0562	Ifaoing days	Coefficients	T-Stat	PIITI > f1
Tuesday	0,2288	0,88	0,3774	Monday	-0,5212	-2,01	0,0454
Wednesday	0,1073	0,40	0,6905	Tuesday	0,2349	0,93	0,3516
Thursday	0,2028	0,75	0,4536	Wednesday	0,1042	0,40	0,6899
Friday	0,9280	3,48	0,0006	Thursday	0,2102	0,79	0,4294
Saturday	-0,3434	-1,27	0,2071	Friday	0,9059	3,51	0,0005
Sunday (derived)	-0,6134	-2,28	0,0235	Saturday Sunday (derived)	-0,3332 -0,6007	-1,25	0,2117 0,0230
Joint F-Test = 8,13 (0,000	0)			Joint F-Test = 8,39 (0,0000)	prot peniers	10/198	
Leap year		hannau kogo;		Leap year			
, c	2,6712	T-Stat 3,07	P[T > t] 0,0024	Co	efficients 2,5121	T-Stat 3,04	P[T > t] 0,0026
Easter [8]				Costar [2]			
C	:oefficients 1,6759	T-Stat 3,08	P[T > t] 0,0023	Co	efficients 1.6820	T-Stat 3.27	P[T > t] 0.0012
Outliers					2.1		1910-01-0
Party State State State State State	Coefficients	T-Stat	P[T > t]	Prespecified outliers	N- 100-000 00000000000000000000000000000	17. 14. 16. 16. 16. 16. 16. 16. 16. 16. 16. 16	000000035
AO (4-2004)	19,8713	10,12	0,0000		Coefficients	T-Stat	P[T > t]
LS (1-2001)	-8,5643	-4,62	0,0000	AO (4-2004)	38,9692	20,10	0,0000
AO (4-2010)	-8,7157	-4,62	0,0000	LS (1-2001)	-8,5669	-4,68	0,0000
AO (3-2004)	8,6114	4,40	0,0000	AU (4-2010)	-0,090/	-4,07	0,0000
A0 (12-2003)	7,2918	3,90	0,0001	A0 (12-2003)	7,2801	3,94	0,0001
				Outliers			
				LS (1-2017)	Coefficients 38,7633	T-Stat 16,13	P[T > t] 0,0000
						-	

 $Figure \ \textbf{3.113:} \ \textbf{The} \ Partial \ concurrent \ adjustment \rightarrow Estimate \ regression \ coefficient + Last \ outliers \ revision \ policy \ results.$

Partial concurrent adjustment \rightarrow

Partial concurrent adjustment **3.2.2.2.1.5.**

Estimate regression coefficient + outliers

The \rightarrow *Estimate regression coefficient + outliers* option means that the ARIMA model and regression parameters, except from the parameters for the outliers, are not reidentified. The parameters of these variables are re-estimated. All outliers are re-identified, i.e. the previous outcome of the outlier detection procedure is not taken into account and all outliers are identified and estimated once again. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Estimate regression coefficient* + *outliers* option (on the right). The parameters of the ARIMA part have been re-estimated and their values have been updated. Also regression coefficients for the calendar variables have been re-estimated. In the revised model there is no *Prespecified outliers* section. Instead, the outliers were re-identified.

Fatimatian analy 17 4000 4				Summary		
Estimation span: 1/-1990 - 1	2-20161			Estimation span: (7-1996 - 7-2017)		
246 observations				253 observations		
Trading days effects (7 var	iables)			Trading days effects (7 variables)		
Easter [8] detected				Easter [8] detected		
5 detected outliers				6 detected outliers		
Final model				Final model		
Likelihood statistics				Likelihood statistics		
Number of effective observ	ations = 233			Number of effective observations = 240		
Number of estimated param	eters = 16			Number of estimated parameters = 17		
Loglikelihood = -559.661671	7869163			Loglikelihood = -573.4952681957561		
Standard error of the regres	ssion (ML estimate) = 2	.6690317386745	05	Standard error of the regression (ML estimate	= 2.63619228429785	05
AIC = 1151.3233435738325	\$			AIC = 1180.9905363915123		
AICC = 1153.841862092351	2 24 42507 40224 504			AICC = 1183.747293148269	705	
BIC (corrected for length) =	2.314330/40231504			Bic (corrected for length) = 2.3040470471520	/35	
Scores at the solution				Scores at the solution		
-0,000004 -0,000414 .						
Arima model [(0,1,1)(1,1,0)].				Arima model [(0,1,1)(1,1,0)].		
	Coofficients	T Stat	DITISA	Confficients	T Stat	DITI > 4
Theta(1)	Loemcients	I-Stat	P[[1] > t]	Thete(1) Coefficients	1-Stat	P[[1]>t]
Ineta(1)	-0,4902	-0,33	0,0000	Debi(1) -0,4908	-6,49	0,0000
DPfil(1)	0,1660	2,40	0,0152	BPIII(1) 0,1679	2,55	0,0120
Correlation of the estimates				Correlation of the estimates		
Theta(1) BF	Phi(1)			Theta(1) BPhi(1)		
Theta(1) 1,0000 0,	0784			Theta(1) 1,0000 0,0615		
BPhi(1) 0,0784 1,	0000			BPhi(1) 0,0615 1,0000		
-						
Trading days				Trading days		
13	Coefficients	T-Stat	P[T > t]	Coefficier	nts T-Stat	P[T > t]
Monday	-0,5102	-1,92	0,0562	Monday -0,52	-2,01	0,0454
Tuesday	0,2288	0,88	0,3774	Tuesday 0,23	49 0,93	0,3516
Wednesday	0,1073	0,40	0,6905	Wednesday 0,10	42 0,40	0,6899
Thursday	0,2028	0,75	0,4536	Thursday 0,21	02 0,79	0,4294
Friday	0,9280	3,48	0,0006	Friday 0,90	59 3,51	0,0005
Saturday	-0,3434	-1,27	0,2071	Saturday -0,33	32 -1,25	0,2117
Sunday (derived)	-0,6134	-2,28	0,0235	Sunday (derived) -0,60	07 -2,29	0,0230
Joint F-Test = 8,13 (0,0000	9			Joint F-Test = 8,39 (0,0000)		
Leap year				Leap year		
C	oefficients	T-Stat	PITI > t1	Coefficients	T-Stat	P[T > t]
	2,6712	3,07	0,0024	2,5121	3,04	0,0026
Easter [8]	antes méri	06684550			100,000	90500000
	oefficients	T-Stat	P[T > t]	Easter [8]		
C	1.6759	3,08	0,0023	Coefficients	T-Stat 3 27	P[T > t] 0.0012
C				1,0020	0,21	0,0012
Cutliere				<u> </u>		
C Outliers	Coefficients	T_Stat	P[ITI > +1	Outliers	Secondaria (1945)	
Outliers	Coefficients	T-Stat	P[T > t]	Outliers Coefficient	s T-Stat	P[T > t]
Outliers A0 (4-2004) LS (1-2001)	Coefficients 19,8713 _8 5643	T-Stat 10,12 -4 62	P[[T] > t] 0,0000 0.0000	Outliers Coefficient A0 (4-2004) 38,969	s T-Stat 2 20,10	P[T > t] 0,0000
Outliers A0 (4-2004) LS (1-2001) A0 (4-210)	Coefficients 19,8713 -8,5643 -8 7157	T-Stat 10,12 -4,62 -4 62	P[[T] > t] 0,0000 0,0000 0.0000	Outliers Coefficient A0 (4-2004) 38,969 LS (1-2017) 38,763	s T-Stat 2 20,10 3 16,13	P[[T] > t] 0,0000 0,0000
Outliers A0 (4-2004) LS (1-2001) A0 (4-2010) A0 (3-2010)	Coefficients 19,8713 -8,5643 -8,7157 8,6114	T-Stat 10,12 -4,62 -4,62 4 40	P[T > t] 0,0000 0,0000 0,0000 0,0000	Outliers Coefficient A0 (4-2004) 38,969 LS (1-2017) 38,763 LS (1-2017) -8,566	s T-Stat 2 20,10 3 16,13 9 -4,68	P[T > t] 0,0000 0,0000 0,0000
Outliers A0 (4-2004) LS (1-2001) A0 (4-2010) A0 (3-2004) A0 (12-2003)	Coefficients 19,8713 -8,5643 -8,7157 8,6114 7 2918	T-Stat 10,12 -4,62 -4,62 4,40 3,90	P[[T] > t] 0,0000 0,0000 0,0000 0,0000 0,0000	Outliers Coefficient AO (4-2004) 38,969 LS (1-2017) 38,763 LS (1-2017) 38,763 LS (1-2001) -8,566 AO (4-2010) -8,696	s T-Stat 2 20,10 3 16,13 9 -4,68 7 -4,67	P[[T] > t] 0,0000 0,0000 0,0000 0,0000 0,0000
Outliers A0 (4-2004) LS (1-2001) A0 (4-2010) A0 (3-2004) A0 (12-2003)	Coefficients 19,8713 -8,5643 -8,7157 8,6114 7,2918	T-Stat 10,12 -4,62 -4,62 4,40 3,90	P[[T] > t] 0,0000 0,0000 0,0000 0,0000 0,0001	Outliers Coefficient AO (4-2004) 38,969 LS (1-2017) 38,763 LS (1-2001) -8,566 AO (4-2010) -8,696 AO (3-2004) 8,586	s T-Stat 2 20,10 3 16,13 9 -4,68 7 -4,67 5 4,45	P[[T] > t] 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000

 Figure 3.114: The Partial concurrent adjustment → Estimate regression coefficient + outliers revision policy results.

 3.2.2.2.1.6.
 Estimate regression coefficient + Arima model

 \rightarrow *Estimate regression coefficient* + *Arima model* option means that

The

Partial concurrent adjustment \rightarrow

Partial concurrent adjustment

the ARIMA model, outliers and regression variables, except from the calendar variables are reidentified. All parameters are re-estimated. The transformation type remains unchanged.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the *Partial concurrent adjustment* \rightarrow *Estimate regression coefficient* + *Arima model* option (on the right). The parameters of the ARIMA part have been re-estimated and their values have been updated. Also regression coefficients for the calendar variables have been re-estimated. In the revised model there is no *Prespecified outliers* section. Instead, the outliers were re-identified.

The picture below presents the initial model (on the left) and the results of the refreshment procedure for the *concurrent adjustment* \rightarrow *Estimate regression coefficient* + *Arima model* option (on the right). The ARIMA part have been re-identified (a change from (2,1,0)(0,1,1) to (0,1,1)(1,1,1)). In contrast to the initial model, in the updated model the mean effect was detected and estimated. Also the results of the automatic outlier identification are not the same in both models.

Series has been log-transfo Series has been corrected f Trading days effects (6 vari Easter [15] detected 4 detected outliers	rmed or leap year ables)			Series has been log-transt Series has been corrected Trading days effects (6 va Easter [15] detected 1 detected outlier	formed I for leap year iriables)		
Final model				Final model			
Likelihood statistics Number of effective observe Number of estimated parame	ations = 131 sters = 15			Likelihood statistics Number of effective obser Number of estimated param	vations = 143 neters = 13		
Loglikelihood = 330.4915800 Transformation adjustment = Adjusted loglikelihood = -277	9584664 -608.1459835096218 .6544034137752			Loglikelihood = 383.271960 Transformation adjustment Adjusted loglikelihood = -33	01133891 = -713.7404772425816 30.4685171291925	3	
Standard error of the regres AIC = 585.3088068275504 AICC = 589.4827198710286 BIC (corrected for length) =	sion (ML estimate) = 0. -7.409339230469036	.0189646920376	9424	Standard error of the regre AIC = 686.937034258385 AICC = 689.758739684741 BIC (corrected for length) :	ession (ML estimate) = 0 6 = -7.89875302500467	0.0156449397063	39882
Scores at the solution -0,004391 0,000967 -0,0129	02			Scores at the solution 0,001814 -0,001954 -0,000	0274		
Arima model (2,1,0)(0,1,1)].				Arima model [(0,1,1)(1,1,1)].			
Phi(1) Phi(2)	Coefficients 0,5040	T-Stat 5,65	P[[T] > t] 0,0000	Theta(1)	Coefficients -0,4311	T-Stat -5,41	P[T > t
BTheta(1)	-0.6188	-8.29	0.0000	BTheta(1)	-0,9507	-12 77	0,0000
Correlation of the estimates Phi(1) Ph Phi(1) 1,0000 0,3	i(2) BTheta(1) 982 0,1323			Correlation of the estimates Theta(1) Theta(1) 1,0000	BPhi(1) BTheta(1) 0,0569 0,4292		
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3822 1,0 BTheta(1) 0,1323 0,0	i(2) BTheta(1) 962 0,1323 900 0,0791 791 1,0000			Correlation of the estimates Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292	Behi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000		
Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(2) 0,382 1,0 Phi(2) Phi	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000			Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0559 BTheta(1) 0,4292 Regression model Mean	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000		
Phi(1) Ph Phi(1) 1,0000 0,3 Phi(2) 0,3882 1,0 BTheta(1) 0,1323 0,0 Regression model 7	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients	T-Stat	P[[T] > t]	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000	T-Stat	P[[1] > t
Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(1) Phi(2) Q382 1,0 Q382 1,0 Q382 Q382 <thq382< th=""> <thq382< th=""> <thq382< td="" th<=""><td>i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0.0046</td><td>T-Stat 0,00 -149</td><td>P[[T] > t] 0,9975 0,1386</td><td>Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu</td><td>BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006</td><td>T-Stat -2,10</td><td>P[[T] > t] 0,0380</td></thq382<></thq382<></thq382<>	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0.0046	T-Stat 0,00 -149	P[[T] > t] 0,9975 0,1386	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006	T-Stat -2,10	P[[T] > t] 0,0380
Correlation of the estimates Phi(1) Ph Phi(1) 1,0000 0,3 Phi(2) 0,3882 1,0 BTheta(1) 0,1323 0,0 Regression model Irading days Monday Wednesday	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044	T-Stat 0,00 -1,49 1,45	P[[T] > t] 0,9975 0,1386 0,1505	Correlation of the estimate: Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006	T-Stat -2,10	P[[T] > t] 0,0380
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3882 1,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032	T-Stat 0,00 -1,49 1,45 -1,03	P[[T] > t] 0,9975 0,1386 0,1505 0,3070	Correlation of the estimate: Theta(1) 1,0000 BPhi(1) 0,0559 BTheta(1) 0,4292 Regression model Mean mu Trading days	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006	T-Stat -2,10 T-Stat	P[[T] > t; 0,0380 P[[T] > t]
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0.3 Phi(2) 0,3982 1.0 BTheta(1) 0,1323 0.0 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Pathorian	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 0,0001	T-Stat 0,00 -1,49 1,45 -1,03 3,37 0,00	P[[T] > t] 0.9975 0.1386 0.1505 0.3070 0.0010 0.2322	Correlation of the estimate: Theta(1) 1,0000 Brhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean Trading days Trading days	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006 Coefficients -0.0027	T-Stat -2,10 T-Stat -1,14	P[[T] > t] 0,0380 P[[T] > t] 0,2578
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3982 1,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Stunday (derivat)	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1 20	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,238	Correlation of the estimate: Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0027	T-Stat -2,10 T-Stat -1,14 0,64	P[[1] > t; 0,0380 P[[1] > t] 0,2578 0,5209
Correlation of the estimates Phi(1) Pr Phi(2) 0,3962 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived)	i(2) BTheta(1) 882 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean Trading days Monday Tuesday Wednesday Wednesday Thureday	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0023 0,0005	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26	P[]T] > t) 0,0380 P[]T] > t] 0,2578 0,5208 0,3401 0,7982
Correlation of the estimates Phi(1) Pr Phi(2) 0,3962 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,86 (0.0015)	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20	P[[T] > t] 0,9975 0,1336 0,1505 0,3070 0,0010 0,3313 0,2308	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean Trading days Monday Tuesday Wednesday Thursday Friday	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0023 0,0006 0,0087	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77	P[T > t) 0,0380 P[T > t] 0,2578 0,5209 0,3401 0,7982 0,0002
Correlation of the estimates Phi(1) PH Phi(2) 0,3862 1,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015)	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308	Correlation of the estimate: Theta(1) Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Thursday Friday Saturday Saturday	Behi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficient -0,0027 0,0015 0,0023 0,0005 -0,0033	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 0,26 3,77 -1,37	P[[T] > t 0,0380 P[[T] > t] 0,5278 0,5200 0,3401 0,7982 0,0002 0,7743
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3982 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model rading days Monday Tuesday Wednesday Thursday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15]	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20	P[T > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308	Correlation of the estimate: Theta(1) 1,0000 BFhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived)	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006 Coefficients -0.0027 0.0015 0.0023 0.0006 0.0087 -0.0033 -0.0033 -0.0033 -0.003	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77 -1,37 -2,96	P[[T] > t 0,0380 P[[T] > t] 0,2578 0,3401 0,7982 0,0402 0,1743 0,0036
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3962 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Vednesday Thusday Friday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15] Common the set of the set	i(2) BTheta(1) 882 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038 pefficients 0,0831	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308 P[[T] > t] 0,0000	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Wednesday Wednesday Friday Saturday Sunday (derived) Joint F-Test = 8,70 (0,0000	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0023 0,0006 0,0087 -0,0033 -0,0072 20	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77 -1,37 -2,96	P[]T] > t] 0,0380 P[]T] > t] 0,2578 0,5209 0,3401 0,7982 0,0002 0,1743 0,0036
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3982 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15] Co	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038 pefficients 0,0831	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38	P[T > t] 0.9975 0.1386 0.1505 0.3070 0.0010 0.3313 0.2308 P[T > t] 0.0000	Correlation of the estimate: Theta(1) 1,0000 BFhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Wednesday Wednesday Saturday Saturday Saturday Saturday Saturday Saturday	BPhi(1) BTheta(1) 0.0569 0.4292 1.0000 -0.0063 -0.0063 1.0000 Coefficient -0.0006 Coefficients -0.0027 0.0015 0.0023 0.0006 0.0023 0.0006 0.0027 0.0012 20	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77 -1,37 -2,96	P[[T] > t 0,0380 P[[T] > t] 0,2578 0,5209 0,3401 0,7982 0,0002 0,1743 0,0036
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3982 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Wednesday Thursday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15] Columbia	i(2) BTheta(1) 982 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038 Defficients 0,0831 Coefficients	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38 T-Stat	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308 P[[T] > t] 0,0000	Correlation of the estimate: Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Wednesday Wednesday Sunday (derived) Joint F-Test = 8,70 (0,0000 Easter [15]	Behi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficients -0,0006 Coefficients -0,0007 0,0015 0,0027 0,0015 0,0027 20 Coefficients -0,0072 -0,	T-Stat -2,10 T-Stat -1,14 0,96 0,26 3,77 -1,37 -2,96 T-Stat 2,90	P[[T] > t) 0,0380 0,2578 0,5209 0,3401 0,7982 0,0002 0,1743 0,0036 P[[T] > t]
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3982 1,0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Vednesday Thursday Friday Saturday Saturday Saturday Saturday Saturday Saturday Saturday Saturday Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation A0 (12-2006)	i(2) BTheta(1) 882 0,1323 000 0,0791 791 1,0000 Coefficients 0,0000 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038 pefficients 0,0831 Coefficients 0,0831	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38 T-Stat 7,00	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308 P[[T] > t] 0,0000 P[[T] > t] 0,0000	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Wednesday Wednesday Friday Saturday Sunday (derived) Joint F-Test = 8,70 (0,0000 Easter [15]	BPhi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0027 0,0015 0,0027 0,0015 0,0027 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0005 0,005 0,0	T-Stat -2,10 T-Stat -1,14 0,96 0,96 0,26 3,77 -1,37 -2,96 T-Stat 3,92	P[[T] > t] 0,0380 0,5299 0,3401 0,7982 0,0002 0,1743 0,0036 P[[T] > t] 0,0001
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0,3 Phi(2) 0,3962 1,0 BTheta(1) 0,1323 0,0 Regression model Trading days Monday Tuesday Wednesday Thursday Friday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15] Continue Contin	i(2) BTheta(1) 882 0,1323 000 0,0791 791 1,0000 Coefficients 0,0004 -0,0046 0,0044 -0,0032 0,0103 -0,0031 -0,0038 pefficients 0,0831 Coefficients 0,1164 -0,0990	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38 T-Stat 7,00 -5,79	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308 P[[T] > t] 0,0000 0,0000 0,0000 0,0000	Correlation of the estimate: Theta(1) Theta(1) 1,0000 BPhi(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Monday Tuesday Wednesday Thursday Saturday Sunday (derived) Joint F-Test = 8,70 (0,0000 Easter [15]	Behi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 -0,0063 1,0000 Coefficient -0,0006 Coefficients 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0027 0,0015 0,0027 0,0023 0,0023 0,0027 0,0023 0,0023 0,0023 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0015 0,0027 0,0027 0,0015 0,0027 0,0027 0,0015 0,0027 0,0077	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77 -1,37 -2,96 T-Stat 3,92	P[]T] > t] 0,0360 P[]T] > t] 0,2578 0,5209 0,3401 0,7982 0,0002 0,1743 0,0006 P[]T] > t] 0,0001
Correlation of the estimates Phi(1) Pr Phi(1) 1,0000 0.3 Phi(2) 0,3982 1.0 BTheta(1) 0,1323 0,0 BTheta(1) 0,1323 0,0 Begression model Trading days Monday Tuesday Wednesday Thursday Saturday Sunday (derived) Joint F-Test = 3,86 (0,0015) Easter [15] Cont Dutliers AO (12-2006) AO (12-2015) TO (2006) AO (12-2015) TO (2006)	i(2) BTheta(1) 982 0,1323 000 0,0791 771 1,0000 Coefficients 0,0044 -0,0032 0,0103 -0,0031 -0,0038 0,0103 -0,0031 -0,0038 Coefficients 0,0831 Coefficients 0,1164 -0,0990 -0,0727 0.0654	T-Stat 0,00 -1,49 1,45 -1,03 3,37 -0,98 -1,20 T-Stat 12,38 T-Stat 12,38 T-Stat 7,00 -5,79 -4,23	P[[T] > t] 0,9975 0,1386 0,1505 0,3070 0,0010 0,3313 0,2308 P[[T] > t] 0,0000 0,0000 0,0000 0,0000 0,0000	Correlation of the estimate: Theta(1) 1,0000 BTheta(1) 0,0569 BTheta(1) 0,4292 Regression model Mean mu Trading days Tuesday Wednesday Tuesday Wednesday Thursday Friday Saturday Saturday Saturday Saturday Saturday Sunday (derived) Joint F-Test = 8,70 (0,0000 Easter [15] C Dutliers	Behi(1) BTheta(1) 0,0569 0,4292 1,0000 -0,0063 0,0063 1,0000 Coefficient -0,0006 Coefficients -0,0027 0,0015 0,0017 -0,0033 -0,0072 20 Coefficients 0,0197	T-Stat -2,10 T-Stat -1,14 0,64 0,96 0,26 3,77 -1,37 -2,96 T-Stat 3,92	P[[T] > t 0,0380 P[[T] > t] 0,2578 0,5209 0,3401 0,7982 0,0002 0,7743 0,0006 P[[T] > t] 0,0001

Summary

Estimation span: [1-2005 - 12-2017]

Figure 3.115: The Partial concurrent adjustment \rightarrow Estimate regression coefficient + Arima model revision policy results.

3.2.2.2.2. Concurrent adjustment

Summary

Estimation span: [1-2005 - 12-2016]

According to the *ESS Guidelines on Seasonal Adjustment* (2015), concurrent adjustment means that the model, filters, outliers, regression parameters and transformation type are re-identified and the respective parameters and factors re-estimated every time new observation is available. This option in JDemetra+ means that the completely new model is identified, and the previous results are not taken into account.

The picture below presents the initial model (on the left) and the results of the refreshment procedure with the Concurrent adjustment option (on the right). The transformation type has changed from none to log. The ARIMA part have been re-identified (a change from (0,1,1)(1,1,0) to (1,1,0)(0,1,1)). In contrast to the initial model, in the updated model the trading days and a leap year effect have been not estimated. Also the results of the automatic outlier identification are not the same in both models.

Summary							
Estimation span: 17-1996 - 12-	20161			Summary			
246 observations				Estimation enant [1 2005	12 20161		
Frading days effects (7 variab	les)			144 observations	- 12-2010]		
aster [8] detected	1007			Series has been log-trans	formed		
5 detected outliers				No tradino dave effects	stormed		
				Faster [1] detected			
Final model				1 detected outlier			
ikelihood statistics				Final model			
Number of effective observation	ons = 233			r mar model			
Number of estimated paramete	rs = 16			Likelihood statistics			
				Number of effective obse	rvations = 131		
_oglikelihood = -559.66167178	69163			Number of estimated para	meters = 5		
Standard error of the regressi	on (ML estimate) = :	2.6690317386745	05				
AIC = 1151.3233435738325				Loglikelihood = 158.22155	489483504		
AICC = 1153.841862092351				Transformation adjustmen	it = -648.184301988354	-	
BIC (corrected for length) = 2.	314356/46231504			Adjusted loglikelihood = -4	89.962747093519		
Scores at the solution				Standard error of the reg	ression (ML estimate) =	0.0686166528665	4098
0,000004 -0,000414				AIC = 989.925494187038			an an Cristian
Arima model			1	AICC = 990.40549418703	8		
(0,1,1)(1,1,0)].				BIC (corrected for length)	= -5.209579054139032	26	
ac 10 10 10 10 10 10 10 10 10 10 10 10 10				Scores at the solution			
	Coefficients	T-Stat	P[T > t]	0,002923 -0,004642			
Theta(1)	-0,4902	-8,33	0,0000	A sime model			
BPhi(1)	0.1680	2.45	0.0152	Arima model			
	1			I(1,1,0)(0,1,1)].			
			14		Coofficients	T Stat	DUTIN
Correlation of the estimates				Db://1)	Coefficients	1-Stat	0.000
				PTII(1)	0,4240	3,25	0,000
Theta(1) BPhi	1)			Differa(1)	-0,0247	-15,50	0,000
Theta(1) 1 0000 0 07	84						
BDbi(1) 0.0784 1.00	00						
DFII(1) 0,0104 1,00	50			Correlation of the estimate	es		
Regression model				Phi(1)	BTheta(1)		
rading days		12020000		BTheta(1) 0.0857	1,000		
	Coefficients	T-Stat	P[[T] > t]	Britera(1) 0,0001	1,0000		
Monday	-0,5102	-1,92	0,0562	872 ·	576		
Tuesday	0,2288	0,88	0,3774	Regression model			
Wednesday	0,1073	0,40	0,6905	Easter [1]			
Thursday	0,2028	0,75	0,4536		Castlinianta	T 64-4	DUTIN
Friday	0,9280	3,48	0,0006		coefficients	I-Stat	P[[1]>
Saturday	-0.3434	-1.27	0,2071		-0,0398	-1,94	0,054
Sunday (derived)	-0.6134	-2.28	0.0235	1 product			
contraly (control)	0,0104	2,20	010200	Outliers			
Joint F-Test = 8,13 (0,0000)				<i>*</i>	Coefficients	T-Stat	P[T >
				TC (1-2011)	-0,4462	-7,36	0,000
<u>eap year</u>							
Coe	ficients	T-Stat	P[[T] > t]				
	2,6712	3,07	0,0024				
aster [8]							
. Coe	ficients	T-Stat	P[[T] > t]				
000	1,6759	3,08	0,0023				
)utliers							
8							
	Coefficients	T-Stat	P[T > t]				
AO (4-2004)	Coefficients 19,8713	T-Stat 10,12	P[[T] > t] 0,0000				
AO (4-2004) LS (1-2001)	Coefficients 19,8713 -8 5643	T-Stat 10,12 -4.62	P[[T] > t] 0,0000 0.0000				
AO (4-2004) LS (1-2001) AO (4-2010)	Coefficients 19,8713 -8,5643 -8,7157	T-Stat 10,12 -4,62	P[[T] > t] 0,0000 0,0000				
AO (4-2004) LS (1-2001) AO (4-2010)	Coefficients 19,8713 -8,5643 -8,7157	T-Stat 10,12 -4,62 -4,62	P[[T] > t] 0,0000 0,0000 0,0000				

Figure 3.116: The Concurrent adjustment revision policy results.

7,2918

3,90

0,0000 0,0001

3.3. Time series modelling

AO (12-2003)

Time series modelling scenarios are designed for a time series analysis that includes identification and estimation of an ARIMA model as well as abnormal values and calendar effects. It is done by