STEMM: Short-Term Quarterly Econometric Forecasting Model for Malta

Technical Appendix

Economic Policy Department
Ministry for Finance

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Abstract

The Short-Term Quarterly Econometric Forecasting Model for Malta (STEMM) is the basis for the official macroeconomic projections, the fiscal projections and the fiscal targets of the Government of Malta. STEMM is a Keynesian model where aggregate demand determines output in the presence of price rigidities in the short-term. The model was originally developed in 2001 by the Economic Policy Department through the assistance of Cambridge Econometrics (UK). The model is medium-scale, consisting of six main blocks. It is composed of 47 identity equations and 69 behavioural equations, most of them specified as an error correction model specification estimated on quarterly European System of Accounts (ESA) 2010 chain-linked data from 1995 to 2016 in accordance with the Engle-Granger two-stage approach. Moreover, there are 47 exogenous variables, consisting of economic variables related to our trading partners, exchange rates, commodity prices, fiscal variables and dummy variables.

Contents

Technical Appendix: Model Blocks and Statistical Tests

1. Trade Block

1.1. Exports

a. Exports of Electrical and Machinery

Dependent Variable: DLOG(XV_EM)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q2
Included observations: 86 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.129309	1.489544	0.086811	0.9311
DLOG(WGDP)	2.394711	1.328295	1.802846	0.0754
D09EM	-0.123449	0.062719	-1.968289	0.0527
D14ON	-0.122353	0.063774	-1.918544	0.0588
DLOG(XP_ST/DEX)	0.174740	0.234159	0.746244	0.4578
DLOG(IFE/SE)	0.795511	0.670003	1.187326	0.2388
Error Correction Term	-0.477578	0.109135	-4.376027	0.0000
LOG(WGDP(-1))	-1.588198	0.512752	-3.097400	0.0027
LOG(XP_ST(-1)/DEX(-1))	-0.248411	0.200648	-1.238047	0.2195
LOG(IFE(-1)/SE(-1))	0.534216	0.585410	0.912552	0.3644

R-squared	0.222089	Log likelihood	77.88417
Adjusted R-squared	0.129968	F-statistic	2.410835
S.E. of regression	0.104063	Prob(F-statistic)	0.018303
Sum squared resid	0.823008	Durbin-Watson stat	1.807683
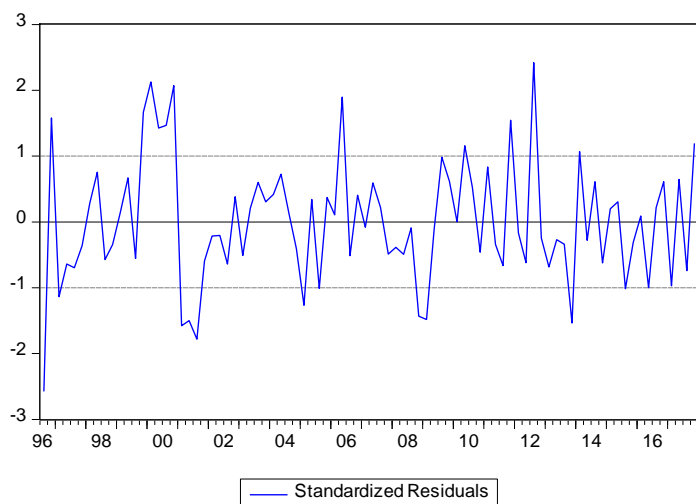
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

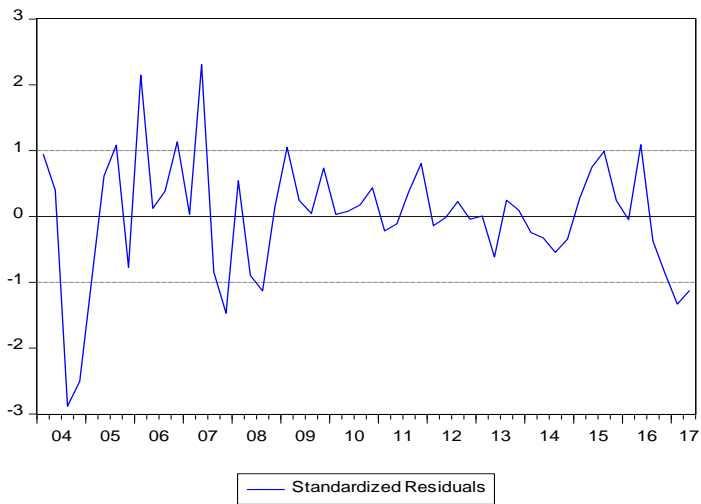| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.71	0.16	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.81	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.79	0.67	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.34	0.21	Accept null at the 5% level of significance.

b. Exports of Fuels

Dependent Variable: DLOG(XV_FUEL)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-13.81765	6.802214	-2.031346	0.0480
DLOG(MV_FUEL)	0.674672	0.228178	2.956779	0.0049
DLOG(WOILP/DEX)	0.817512	0.401402	2.036641	0.0475
D05	-1.465575	0.359973	-4.071352	0.0002
Error Correction Term	-0.716561	0.131704	-5.440691	0.0000
LOG(WOILP(-1)/DEX(-1))	-1.100520	0.422533	-2.604575	0.0123
LOG(WGDPV(-1))	-2.549154	1.531648	-1.664321	0.1028
LOG(MV_FUEL(-1))	-0.588497	0.289480	-2.032946	0.0479

R-squared	0.479059	Log likelihood	-25.17059
Adjusted R-squared	0.399785	F-statistic	6.043098
S.E. of regression	0.417845	Prob(F-statistic)	0.000050
Sum squared resid	8.031338	Durbin-Watson stat	1.490287

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

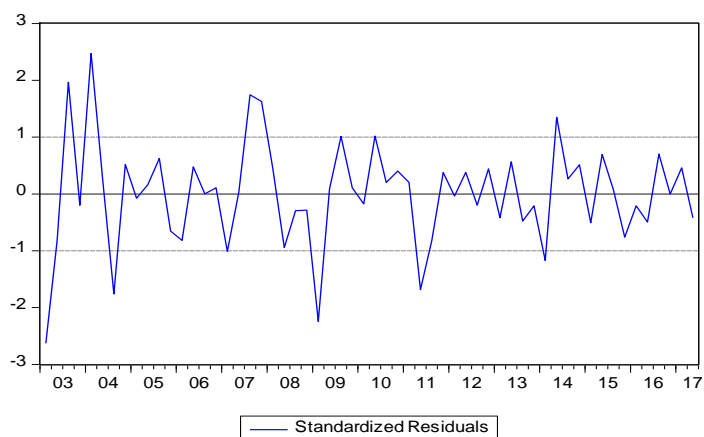| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.40	0.25	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.49	-	Accept null but indicates evidence of weak autocorrelation although within acceptable limits.
Jarque-Bera	H_0: Residuals are normally distributed	8.01	0.02	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.68	0.11	Accept null at the 5% level of significance.

c. Exports of Chemicals and Pharmaceuticals

Dependent Variable: DLOG(XV_CHEMPHAR)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2003Q1 2017Q2
Included observations: 58

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-32.78355	8.109626	-4.042548	0.0002
DLOG(XV_CHEMPHAR(-4))	-0.169343	0.095317	-1.776634	0.0818
D16Q4	-0.747955	0.233186	-3.207542	0.0024
DLOG(HICP_PHAR)	7.561662	3.909520	1.934166	0.0589
D16-D16Q4	0.741164	0.127658	5.805846	0.0000
Error Correction Term	-0.578087	0.110033	-5.253780	0.0000
LOG(WGDP(-1))	-3.260934	1.467040	-2.222799	0.0309
LOG(WP(-1)/SEK(-1))	-1.938149	0.534842	-3.623776	0.0007
LOG(HICP_PHAR(-1))	-10.04198	1.902758	-5.277591	0.0000

R-squared	0.732352	Log likelihood		24.19974
Adjusted R-squared	0.688654	F-statistic		16.75952
S.E. of regression	0.173450	Prob(F-statistic)		0.000000
Sum squared resid	1.474166	Durbin-Watson stat		1.807657

Residual Diagnostics of ECM Parsimonious Specification

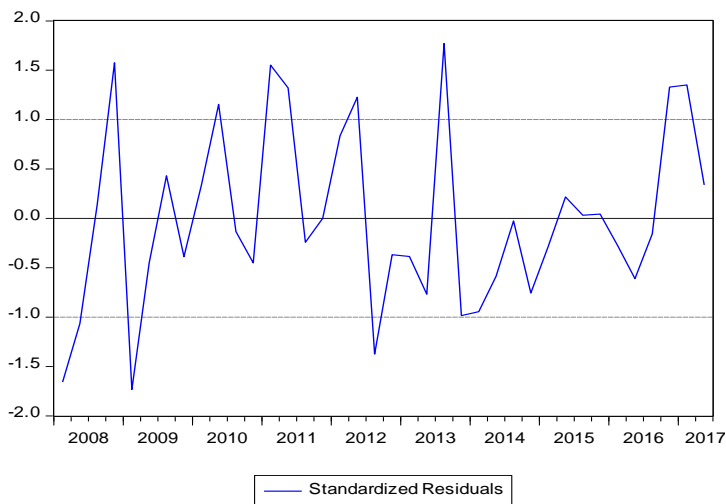| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.87	0.50	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.81	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	4.51	0.10	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.48	0.17	Accept null at the 5% level of significance.

d. Exports of other goods

Dependent Variable: XV_OG
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2008Q1 2017Q2
Included observations: 38

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1156102.	1586500.	0.728713	0.4716
LOG(XV_FUEL)	-135395.3	25446.18	-5.320849	0.0000
LOG(XV_CHEMPHAR+XV_EM)	-308931.3	90389.17	-3.417791	0.0018
LOG(MV_INT)	350302.3	122402.0	2.861899	0.0075
D11Q4	-298262.8	85066.96	-3.506212	0.0014
DSUMMER * D2011ON	-124924.3	37887.15	-3.297274	0.0025
DWINTER	47510.32	30556.53	1.554833	0.1301

R-squared	0.831682	Log likelihood	-475.8067
Adjusted R-squared	0.799105	F-statistic	25.52926
S.E. of regression	73430.11	Prob(F-statistic)	0.000000
Sum squared resid	1.67E+11	Durbin-Watson stat	1.786481

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

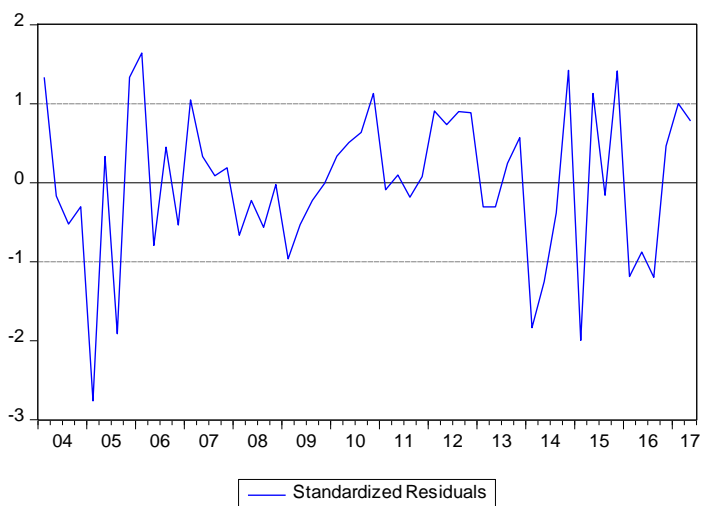| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.93	0.47	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.79	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	3.31	0.19	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.39	0.21	Accept null at the 5% level of significance.

8

e. Exports of financial services

Dependent Variable: DLOG(XV_FIS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-9.208746	7.981680	-1.153735	0.2543
DLOG(XV_FIS(-4))	0.289802	0.122100	2.373492	0.0217
Error Correction Term	-0.315325	0.089683	-3.516005	0.0010
LOG(WGDP(-1))	-5.263753	2.728142	-1.929428	0.0596
LOG(INT(-1))	-0.214454	0.056633	-3.786713	0.0004
LOG(STG(-1))	-2.480055	0.909810	-2.725905	0.0089

R-squared	0.363448	Log likelihood	17.65873
Adjusted R-squared	0.297140	F-statistic	5.481245
S.E. of regression	0.185063	Prob(F-statistic)	0.000454
Sum squared resid	1.643914	Durbin-Watson stat	2.048142

Residual Diagnostics of ECM Parsimonious Specification

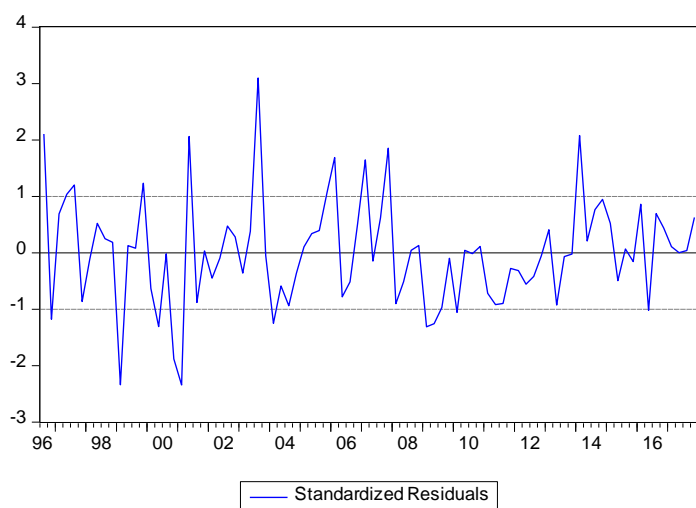| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.55	0.73	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.03	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.30	0.86	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.78	0.11	Accept null at the 5% level of significance.

f. Exports of other business services

Dependent Variable: DLOG(XV_OBS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q4
Included observations: 86 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	3.192677	0.619563	5.153109	0.0000
D06EURO	0.417603	0.096446	4.329904	0.0000
D2010ON	-0.343228	0.070657	-4.857674	0.0000
DLOG(WGDPV(-1))	4.440463	1.352749	3.282547	0.0015
Error Correction Term	-0.601558	0.079239	-7.591704	0.0000
LOG(WP(-1))	1.760050	0.994898	1.769076	0.0808
LOG(HICP_SERV(-1))	1.306144	0.341446	3.825325	0.0003
LOG(IFE(-1)/SE(-1))	-4.570660	0.472385	-9.675704	0.0000

R-squared	0.477359	Log likelihood	56.96650
Adjusted R-squared	0.430455	F-statistic	10.17743
S.E. of regression	0.131005	Prob(F-statistic)	0.000000
Sum squared resid	1.338658	Durbin-Watson stat	1.833853

Residual Diagnostics of ECM Parsimonious Specification

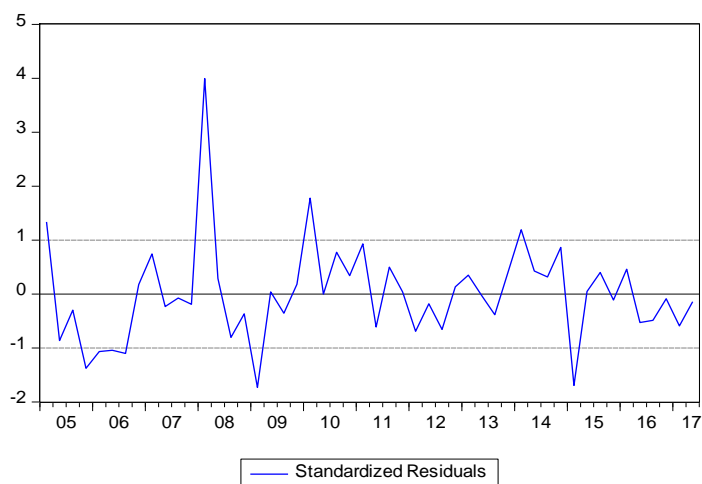| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.57	0.73	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.83	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	5.55	0.06	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.72	0.70	Accept null at the 5% level of significance.

g. Exports of remote gaming

Dependent Variable: DLOG(XV_RG)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2005Q1 2017Q2
Included observations: 50

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-14.85930	5.928000	-2.506629	0.0161
DLOG(XV_RG(-4))	0.264066	0.116374	2.269106	0.0285
DLOG(WP/CHF)	1.745241	0.538870	3.238706	0.0023
DWINTER	-0.072984	0.040308	-1.810640	0.0774
Error Correction Term	-0.420554	0.131432	-3.199778	0.0026
LOG(WGDP(-1))	-6.248302	1.379120	-4.530643	0.0000
LOG(WP(-1)/CHF(-1))	-1.510960	0.409214	-3.692342	0.0006
LOG(TIME(-1))	-0.103411	0.041691	-2.480400	0.0172

R-squared	0.595774	Log likelihood	42.44764
Adjusted R-squared	0.528403	F-statistic	8.843195
S.E. of regression	0.112961	Prob(F-statistic)	0.000001
Sum squared resid	0.535926	Durbin-Watson stat	1.765339

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H₀: Residuals are serially uncorrelated	1.05	0.41	Accept null at 5% level of significance.
Durbin-Watson	H₀: Residuals are not autocorrelated	1.77	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H₀: Residuals are normally distributed	81.00	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H₀: Homoskedastic residuals	1.76	0.09	Accept null at 5% level of significance.

h. Inbound tourist numbers

Dependent Variable: DLOG(TNUM)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 01/08/18   Time: 11:45
Sample: 1998Q1 2017Q2
Included observations: 78

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.069076	0.595532	6.832678	0.0000
DLOG(TNUM(-4))	0.317007	0.085065	3.726624	0.0004
D16Q4ON	0.118930	0.032404	3.670273	0.0005
DAUTUMN	-0.514762	0.065310	-7.881815	0.0000
DWINTER	-0.468308	0.063919	-7.326595	0.0000
Error Correction Term	-0.373524	0.048879	-7.641821	0.0000
LOG(WGDPTV(-1))	-0.390852	0.122733	-3.184566	0.0022
LOG(WGDPTV(-1))*D13Q2ON	-0.043053	0.007737	-5.564447	0.0000

R-squared	0.990618	Log likelihood	130.9568
Adjusted R-squared	0.989680	F-statistic	1055.909
S.E. of regression	0.047655	Prob(F-statistic)	0.000000
Sum squared resid	0.158971	Durbin-Watson stat	1.818016
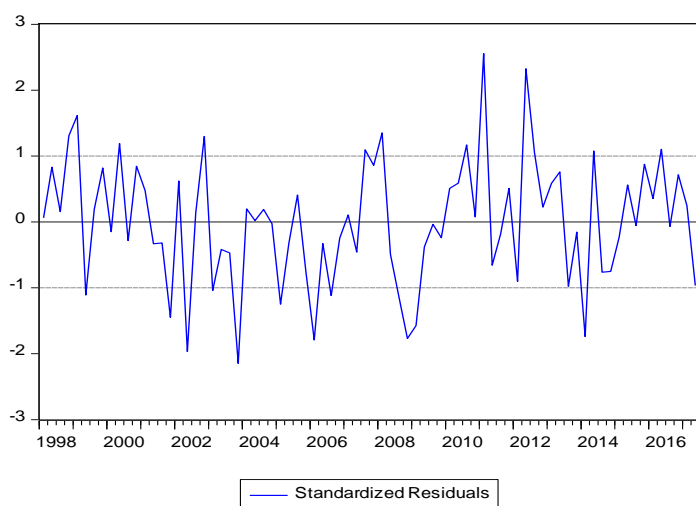
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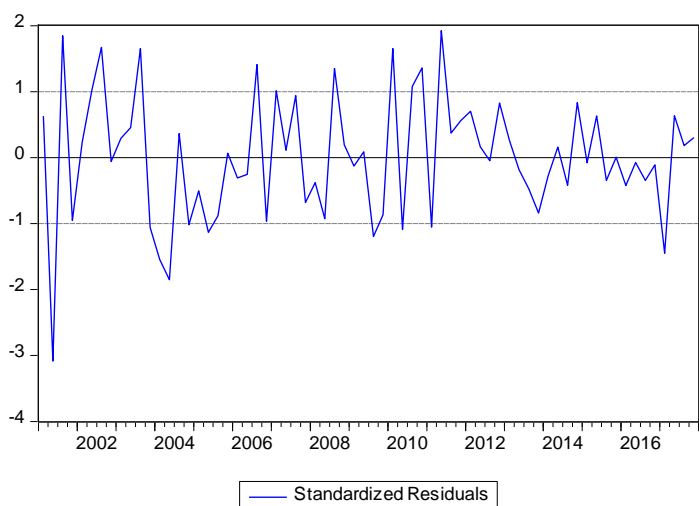| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.69	0.15	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.82	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.00	0.99	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.08	0.39	Accept null at the 5% level of significance.

i. Tourist Average Spending

Dependent Variable: DLOG(TAVSPEND)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2001Q1 2017Q2
Included observations: 66

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.039431	0.443302	2.344749	0.0223
DLOG(HICP)	0.903093	0.416887	2.166280	0.0342
DLOG(TAVSPEND(-4))	0.693060	0.076249	9.089449	0.0000
D2010ON*DSUMMER	0.103248	0.032321	3.194470	0.0022
DLOG(STG(-1))	-0.549225	0.178033	-3.084959	0.0031
Error Correction Term	-0.771605	0.111482	-6.921346	0.0000
LOG(TAVSPEND(-5))	-0.787636	0.091219	-8.634539	0.0000

R-squared	0.910937	Log likelihood	99.96261
Adjusted R-squared	0.902176	F-statistic	103.9843
S.E. of regression	0.058738	Prob(F-statistic)	0.000000
Sum squared resid	0.210463	Durbin-Watson stat	2.356985

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

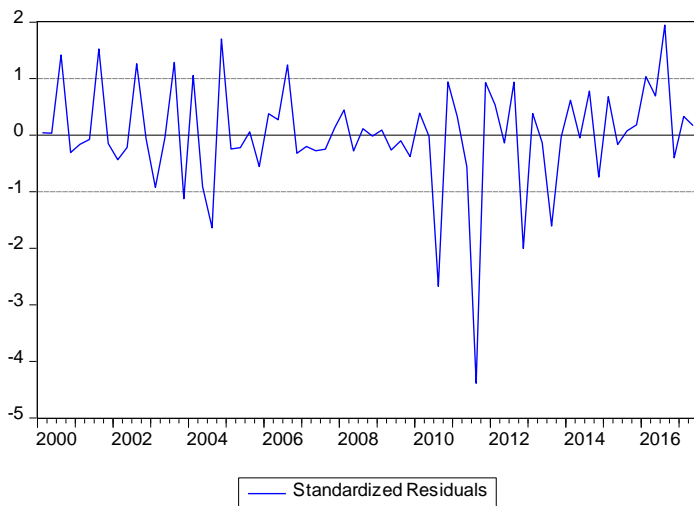| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.61	0.17	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.36	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.32	0.52	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.83	0.08	Accept null at the 5% level of significance.

j. Exports of other services.

Dependent Variable: DLOG(XV_OS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.769308	3.720619	-0.475541	0.6360
DLOG(XV_OS(-4))	0.471429	0.076833	6.135790	0.0000
DAUTUMN	-0.471570	0.128750	-3.662672	0.0005
Error Correction Term	-0.603557	0.095546	-6.316939	0.0000
LOG(WGDP(-1))	-1.935528	0.810355	-2.388493	0.0198

R-squared	0.805618	Log likelihood	-31.45880
Adjusted R-squared	0.793656	F-statistic	67.34842
S.E. of regression	0.393579	Prob(F-statistic)	0.000000
Sum squared resid	10.06879	Durbin-Watson stat	2.378736

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

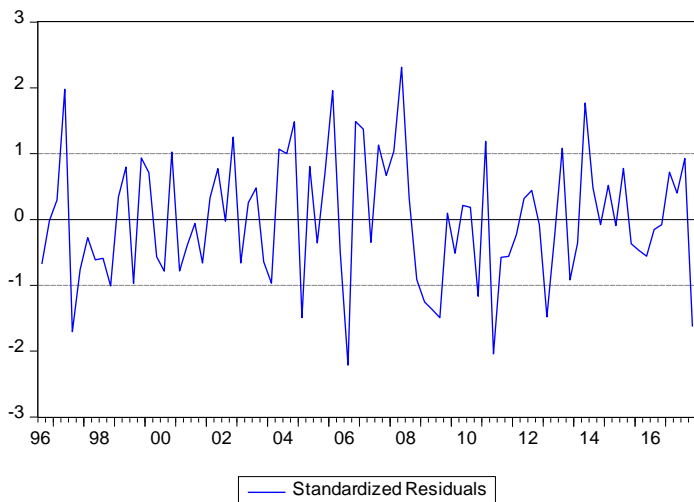| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.77	0.13	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.38	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	107.0	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.09	0.39	Accept null at the 5% level of significance.

1.2. Imports

a. Imports of Consumption Goods

Dependent Variable: DLOG(MV_CONS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q2
Included observations: 84 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.016864	0.307982	-3.301701	0.0015
DLOG(SCV)	0.921197	0.135395	6.803760	0.0000
DAUTUMN	0.052249	0.012507	4.177623	0.0001
DLOG(MV_CONS(-4))	0.244381	0.068186	3.584063	0.0006
D_INTC	0.026847	0.016046	1.673119	0.0983
Error Correction Term	-0.523564	0.090772	-5.767899	0.0000
LOG(SCV(-1))	-1.038384	0.036139	-28.73290	0.0000
LOG(WP(-1)/DEX(-1))	0.104871	0.072699	1.442543	0.1532

R-squared	0.558507	Log likelihood	171.4909
Adjusted R-squared	0.518886	F-statistic	14.09618
S.E. of regression	0.034590	Prob(F-statistic)	0.000000
Sum squared resid	0.093323	Durbin-Watson stat	1.974006

Residual Diagnostics of ECM Parsimonious Specification

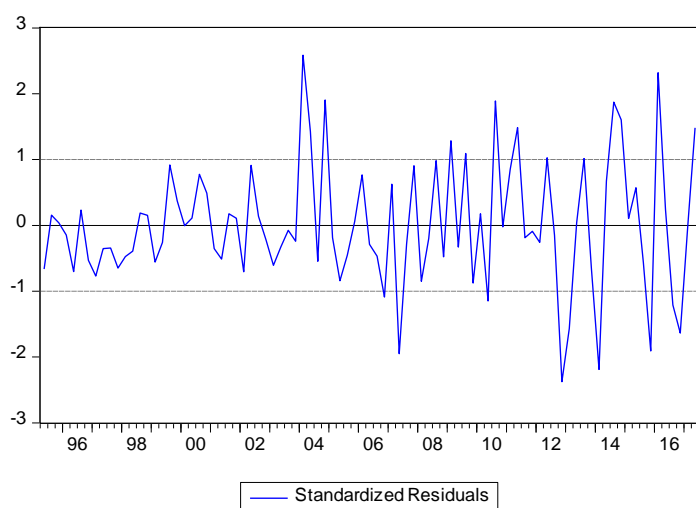| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.53	0.75	Accept null at 5% level of significance although at the threshold.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.97	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.63	0.73	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.35	0.20	Accept null at the 5% level of significance.

b. Imports of Capital Goods

Dependent Variable: DLOG(MV_CAP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1995Q2 2017Q2
Included observations: 89 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	6.364142	2.734308	2.327514	0.0225
DLOG(SKV/SKP)	0.671171	0.251409	2.669636	0.0092
DLOG(LRINT_MT)	-0.747119	0.299692	-2.492955	0.0147
DSPRING	0.166139	0.072600	2.288414	0.0248
DSUMMER	0.210806	0.068116	3.094819	0.0027
Error Correction Term	-0.835298	0.112962	-7.394533	0.0000
LOG(SKV(-1)/SKP(-1))	-0.375076	0.249127	-1.505564	0.1361
LOG(WP(-1)/EFEX(-1))	-1.568097	0.584176	-2.684287	0.0088
LOG(LRINT_MT(-1))	0.502723	0.129053	3.895479	0.0002

R-squared	0.507022	Log likelihood	-2.769475
Adjusted R-squared	0.457724	F-statistic	10.28487
S.E. of regression	0.263286	Prob(F-statistic)	0.000000
Sum squared resid	5.545544	Durbin-Watson stat	1.902376

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

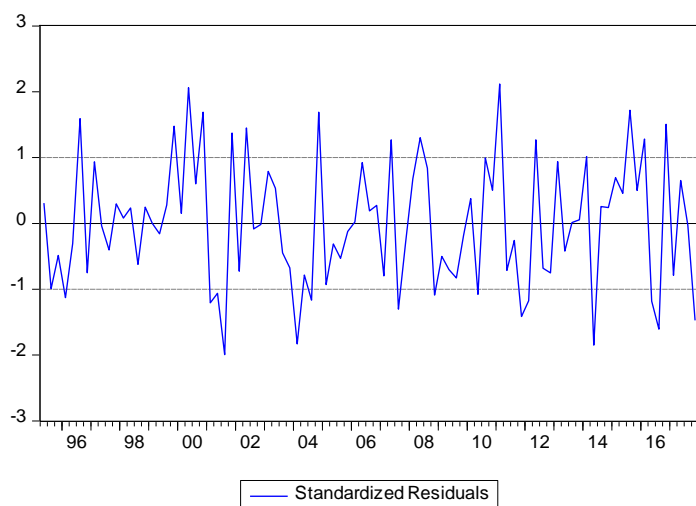| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.67	0.65	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.90	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.59	0.45	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	3.29	0.00	Reject null at the 5% level of significance.

c. Imports of Intermediate Goods

Dependent Variable: DLOG(MV_INT)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1995Q2 2017Q2
Included observations: 89 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.397300	0.758872	3.159030	0.0022
DLOG(XV_EM + XV_CHEMPHAR)	0.399575	0.061757	6.470162	0.0000
D16	-0.169833	0.040761	-4.166599	0.0001
DAUTUMN	-0.062295	0.017096	-3.643885	0.0005
Error Correction Term	-0.666072	0.090448	-7.364118	0.0000
LOG(XV_EM(-1) + XV_CHEMPHAR(-1))	-0.726513	0.076486	-9.498650	0.0000
LOG(HICP_IND(-1))	1.196389	0.236281	5.063421	0.0000

R-squared	0.603343	Log likelihood	122.4124
Adjusted R-squared	0.575010	F-statistic	21.29497
S.E. of regression	0.065605	Prob(F-statistic)	0.000000
Sum squared resid	0.361534	Durbin-Watson stat	2.120790

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

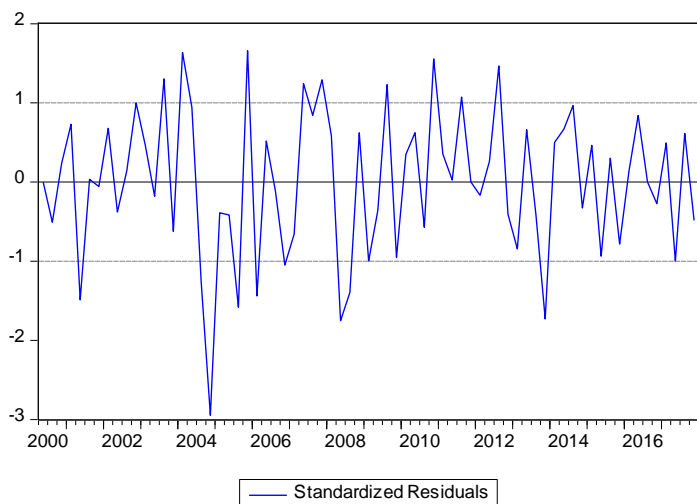| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.96	0.09	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.12	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.12	0.35	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.09	0.38	Accept null at the 5% level of significance.

d. Imports of Fuel

Dependent Variable: DLOG(MV_FUEL)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q2 2017Q2
Included observations: 69

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	6.001188	3.764981	1.593949	0.1161
DLOG(GDP)	0.466254	0.272231	1.712717	0.0918
DLOG(WOILP/DEX)	0.483262	0.163139	2.962276	0.0043
D12ON	0.576962	0.119453	4.830018	0.0000
D11Q4	1.049619	0.211833	4.954936	0.0000
D16Q3	0.370644	0.208265	1.779677	0.0801
Error Correction Term	-0.946220	0.114160	-8.288526	0.0000
LOG(WOILP(-1)/DEX(-1))	-0.745588	0.087466	-8.524321	0.0000
LOG(WOILP(-1)/DEX(-1))*(1 − D_SUP)	-0.245905	0.028535	-8.617674	0.0000
LOG(GDP(-1))	-0.153429	0.274517	-0.558904	0.5783

R-squared	0.650910	Log likelihood	19.93358
Adjusted R-squared	0.599405	F-statistic	12.63777
S.E. of regression	0.197150	Prob(F-statistic)	0.000000
Sum squared resid	2.370957	Durbin-Watson stat	2.154419

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H0: Residuals are serially uncorrelated	1.36	0.25	Accept null at 5% level of significance.
Durbin-Watson	H0: Residuals are not autocorrelated	2.15	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H0: Residuals are normally distributed	2.62	0.27	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H0: Homoskedastic residuals	0.84	0.61	Accept null at the 5% level of significance.

e. Imports of Financial Services

Dependent Variable: DLOG(MV_FIS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.657028	0.848504	3.131426	0.0029
DLOG(XV_FIS)	0.634788	0.109512	5.796504	0.0000
DLOG(INT)	-0.088209	0.039968	-2.207017	0.0319
Error Correction Term	-0.466497	0.124149	-3.757572	0.0004
LOG(XV_FIS(-1))	-0.462187	0.082161	-5.625407	0.0000
LOG(WP(-1)/DEX(-1))	-0.962794	0.408971	-2.354186	0.0225
R-squared	0.553766	Log likelihood	27.27326
Adjusted R-squared	0.509143	F-statistic	12.40979
S.E. of regression	0.157348	Prob(F-statistic)	0.000000
Sum squared resid	1.237916	Durbin-Watson stat	1.757244

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

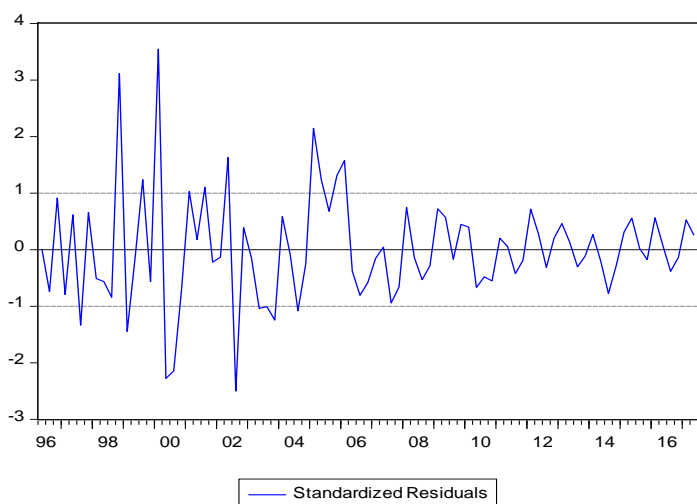| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.56	0.73	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.76	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.39	0.50	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.56	0.15	Accept null at the 5% level of significance.

f. Imports of Other Business Services

Dependent Variable: DLOG(MV_OBS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q2 2017Q2
Included observations: 85 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	3.752255	1.091872	3.436533	0.0010
DLOG(XV_OBS)	0.224631	0.105162	2.136050	0.0359
D2010ON	0.385177	0.092711	4.154606	0.0001
DLOG(MV_OBS(-4))	0.154627	0.093825	1.648037	0.1035
DLOG(HICP_SERV)	0.610152	0.308509	1.977745	0.0516
Error Correction Term	-0.560680	0.107492	-5.216017	0.0000
LOG(XV_OBS(-1))	-0.393185	0.136288	-2.884965	0.0051
LOG(EFEX(-1))	-2.210604	1.218218	-1.814620	0.0736
LOG(HICP_SERV(-1))	-1.244178	0.364424	-3.414095	0.0010
LOG(XV_OBS(-1))*D06EURO	-0.060639	0.014690	-4.128016	0.0001

R-squared	0.309091	Log likelihood	45.75554
Adjusted R-squared	0.226182	F-statistic	3.728067
S.E. of regression	0.150370	Prob(F-statistic)	0.000656
Sum squared resid	1.695832	Durbin-Watson stat	2.265845

Residual Diagnostics of ECM Parsimonious Specification

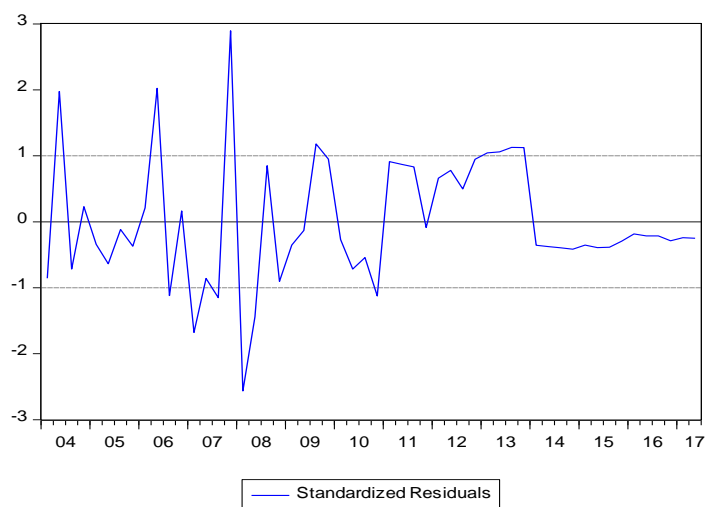| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.83	0.53	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.27	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	28.99	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.22	0.29	Accept null at the 5% level of significance.

g. Imports of Remote Gaming

Dependent Variable: LOG(MV_RG)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.771379	0.573986	-1.343900	0.1850
LOG(XV_RG)	0.521106	0.073781	7.062850	0.0000
LOG(MV_RG(-4))	0.331655	0.085924	3.859861	0.0003
D13ON	0.793532	0.140441	5.650293	0.0000

R-squared	0.960622	Log likelihood	1.265314
Adjusted R-squared	0.958260	F-statistic	406.5849
S.E. of regression	0.245640	Prob(F-statistic)	0.000000
Sum squared resid	3.016941	Durbin-Watson stat	2.084982

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

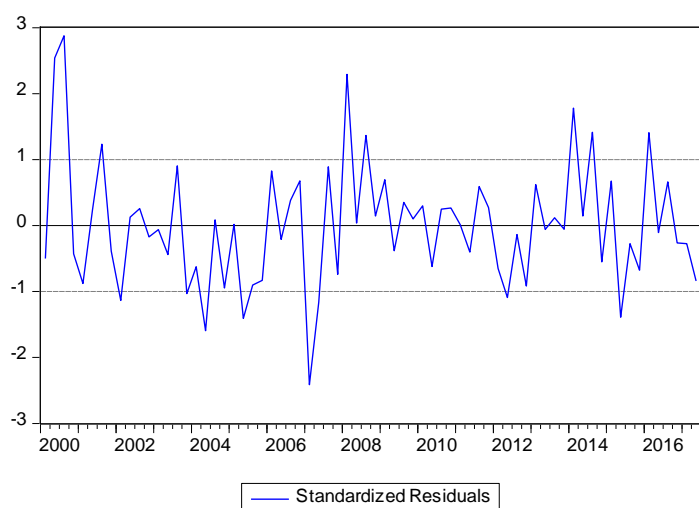| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.14	0.98	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.08	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	3.06	0.22	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.76	0.11	Accept null at the 5% level of significance.

h. Imports of Other Services

Dependent Variable: DLOG(MV_OS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.877787	0.882245	5.528835	0.0000
DLOG(XV_OS)	0.028773	0.014925	1.927882	0.0585
DLOG(HICP_SERV)	0.859928	0.191087	4.500195	0.0000
D2011ON	0.060024	0.036259	1.655427	0.1029
Error Correction Term	-0.447485	0.079799	-5.607620	0.0000
LOG(XV_OS(-1))	-0.094364	0.043677	-2.160497	0.0346
LOG(WP(-1)/DEX(-1))	-0.726381	0.201201	-3.610224	0.0006
LOG(HICP_SERV(-1))	-1.891386	0.300622	-6.291575	0.0000

R-squared	0.479332	Log likelihood	90.75092
Adjusted R-squared	0.420547	F-statistic	8.153982
S.E. of regression	0.070320	Prob(F-statistic)	0.000001
Sum squared resid	0.306583	Durbin-Watson stat	1.918930

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.27	0.29	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.92	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	7.92	0.02	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.69	0.73	Accept null at the 5% level of significance.

22

2. Value Added Block

a. Value Added of the Electrical and Machinery sector

Dependent Variable: DLOG(YVAV_EM)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q2 2017Q2
Included observations: 85 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.341082	0.997439	0.341957	0.7333
DLOG(YVAV_EM(-4))	0.198191	0.095706	2.070825	0.0416
DLOG(XV_EM)	0.701096	0.137968	5.081586	0.0000
Error Correction Term	-0.156430	0.059929	-2.610250	0.0108
LOG(XV_EM(-1))	-0.662579	0.526501	-1.258456	0.2119

R-squared	0.322166	Log likelihood	54.48022
Adjusted R-squared	0.288274	F-statistic	9.505754
S.E. of regression	0.131392	Prob(F-statistic)	0.000002
Sum squared resid	1.381109	Durbin-Watson stat	1.950720
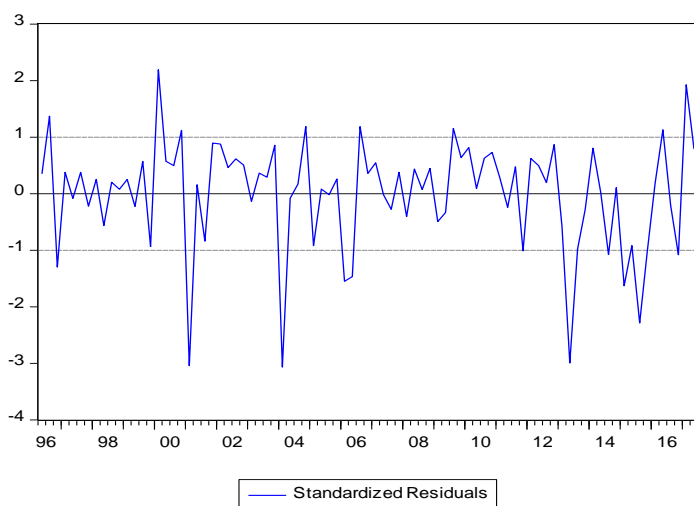
Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.55	0.74	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.95	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	28.48	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.92	0.09	Accept null at the 5% level of significance.

## b. Value Added of the Pharmaceuticals and Chemicals sector

Dependent Variable: DLOG(YVAV_CHEMPHAR)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.505325	0.273381	5.506333	0.0000
DLOG(XV_CHEMPHAR)	0.409772	0.053548	7.652455	0.0000
D16-D16Q4	0.445230	0.086085	5.171987	0.0000
D17Q1+D17Q2	-0.216206	0.080742	-2.677726	0.0095
D08CHPH	0.260273	0.066577	3.909372	0.0002
Error Correction Term	-0.456323	0.068052	-6.705483	0.0000
LOG(XV_CHEMPHAR(-1))	-0.597622	0.031180	-19.16705	0.0000
LOG(XV_CHEMPHAR(-1))*D0507	-0.039370	0.007870	-5.002462	0.0000

R-squared	0.594525	Log likelihood	60.29103
Adjusted R-squared	0.548746	F-statistic	12.98673
S.E. of regression	0.108657	Prob(F-statistic)	0.000000
Sum squared resid	0.731994	Durbin-Watson stat	1.970159
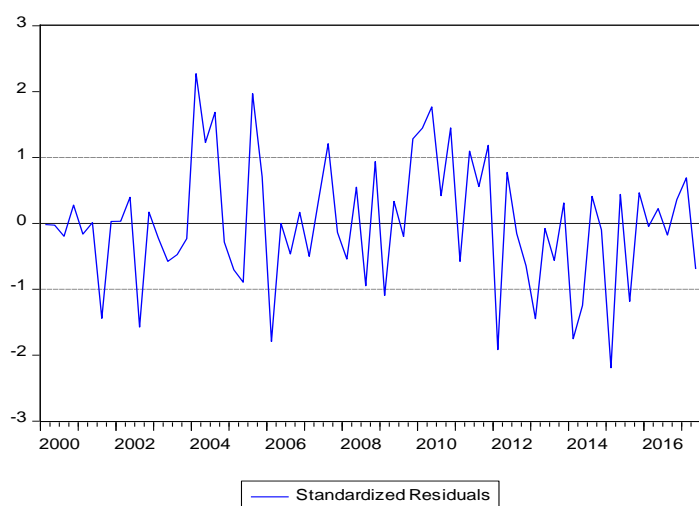
Residual Diagnostics of ECM Parsimonious Specification

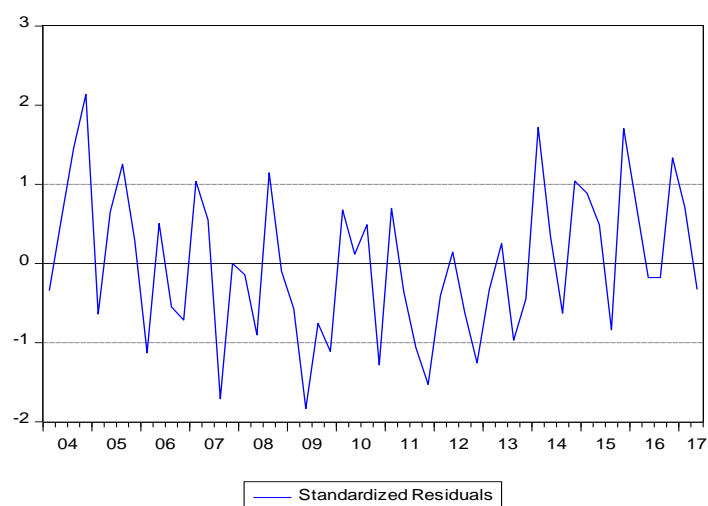| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.25	0.30	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.97	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.02	0.99	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.25	0.30	Accept null at the 5% level of significance.

c. Value Added of the Other Goods sector

Dependent Variable: DLOG(YVAV_OG)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.857113	0.598497	1.432110	0.1589
DLOG(SCV)	0.371630	0.162228	2.290789	0.0266
D07Q4	-0.150002	0.041701	-3.597046	0.0008
D08CHPH	0.120411	0.021309	5.650614	0.0000
DSPRING	0.062185	0.013689	4.542752	0.0000
D10EM	-0.068189	0.022020	-3.096648	0.0033
Error Correction Term	-0.635870	0.078588	-8.091227	0.0000
LOG(SCV)	-0.751874	0.064366	-11.68122	0.0000

R-squared	0.747785	Log likelihood	101.3742
Adjusted R-squared	0.709404	F-statistic	19.48340
S.E. of regression	0.040113	Prob(F-statistic)	0.000000
Sum squared resid	0.074015	Durbin-Watson stat	1.774030

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

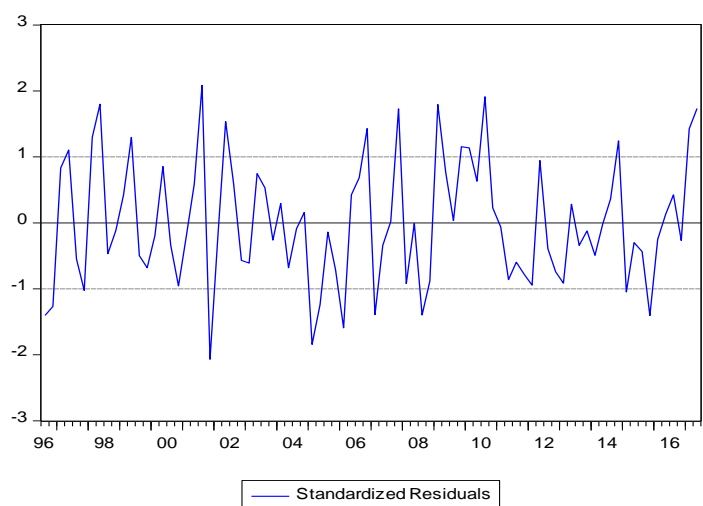| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.24	0.07	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.77	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.13	0.57	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.97	0.46	Accept null at the 5% level of significance.

25

d. Value Added of the Domestic sector

Dependent Variable: DLOG(YVAV_OD)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q2
Included observations: 84 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.485176	0.685027	0.708258	0.4810
DLOG(SCV)	0.735693	0.235979	3.117616	0.0026
D_INTC	0.171592	0.044018	3.898241	0.0002
DSUMMER	0.122920	0.022522	5.457706	0.0000
D12Q1Q2	-0.145042	0.061171	-2.371107	0.0203
D13ON	0.154241	0.036151	4.266618	0.0001
Error Correction Term	-0.724648	0.088944	-8.147225	0.0000
LOG(SCV)	-0.788433	0.069893	-11.28053	0.0000

R-squared	0.672608	Log likelihood	98.53542
Adjusted R-squared	0.642453	F-statistic	22.30533
S.E. of regression	0.078714	Prob(F-statistic)	0.000000
Sum squared resid	0.470885	Durbin-Watson stat	1.695420

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.27	0.06	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.70	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.09	0.35	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.20	0.31	Accept null at the 5% level of significance.

## e. Value Added of the Real Estate and Construction Activities sector

Dependent Variable: DLOG(YVAV_RCONS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.916832	0.665263	1.378149	0.1745
DLOG(YVAV_RCONS(-1))	-0.227685	0.122256	-1.862361	0.0687
D15+D16	0.043426	0.011350	3.825965	0.0004
Error Correction Term	-0.301431	0.082435	-3.656605	0.0006
LOG(HICP(-1))	0.549465	0.365073	1.505083	0.1389
LOG(IFE(-1))	-0.667677	0.156773	-4.258877	0.0001

R-squared	0.378533	Log likelihood	137.3824
Adjusted R-squared	0.313797	F-statistic	5.847319
S.E. of regression	0.020158	Prob(F-statistic)	0.000270
Sum squared resid	0.019504	Durbin-Watson stat	1.666739
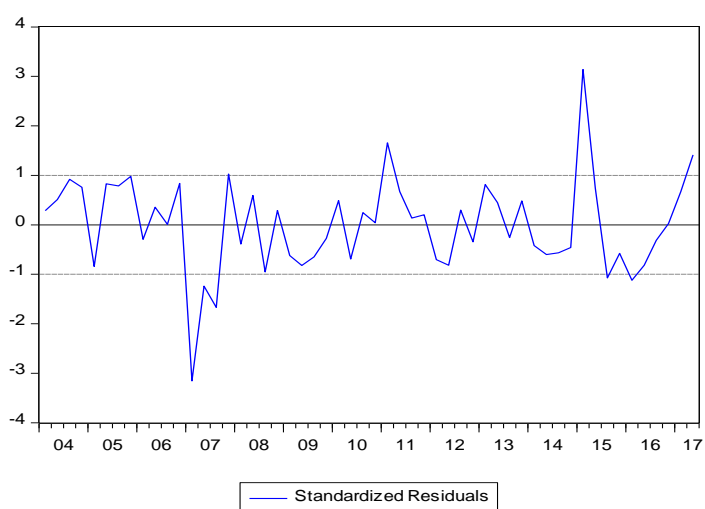
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.35	0.06	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.67	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	12.95	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	2.18	0.06	Accept null at the 5% level of significance.

27
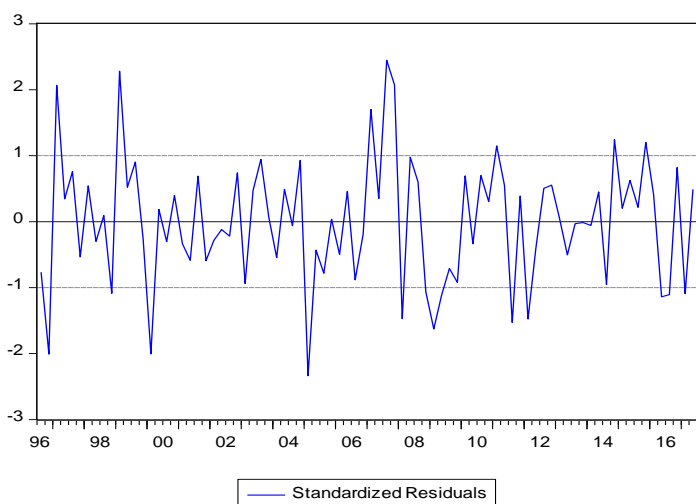
f. Value Added of the Wholesale and Retail Trade sector

Dependent Variable: DLOG(YVAV_WRT)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q2
Included observations: 84 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.618153	0.845030	-0.731516	0.4667
D12ON	0.057873	0.016305	3.549455	0.0007
DLOG(SCV)	0.160845	0.097028	1.657707	0.1015
Error Correction Term	-0.711849	0.088313	-8.060531	0.0000
LOG(SCV(-1))	-0.478765	0.130442	-3.670342	0.0004
LOG(HICP_SERV(-1))	0.203181	0.075253	2.699950	0.0085
LOG(DEX(-1))	0.084552	0.048488	1.743777	0.0852
LOG(YVAV_WRT(-4))	-0.543293	0.101482	-5.353577	0.0000

R-squared	0.474483	Log likelihood	177.8548
Adjusted R-squared	0.426080	F-statistic	9.802776
S.E. of regression	0.030617	Prob(F-statistic)	0.000000
Sum squared resid	0.071240	Durbin-Watson stat	2.074113

Residual Diagnostics of ECM Parsimonious Specification

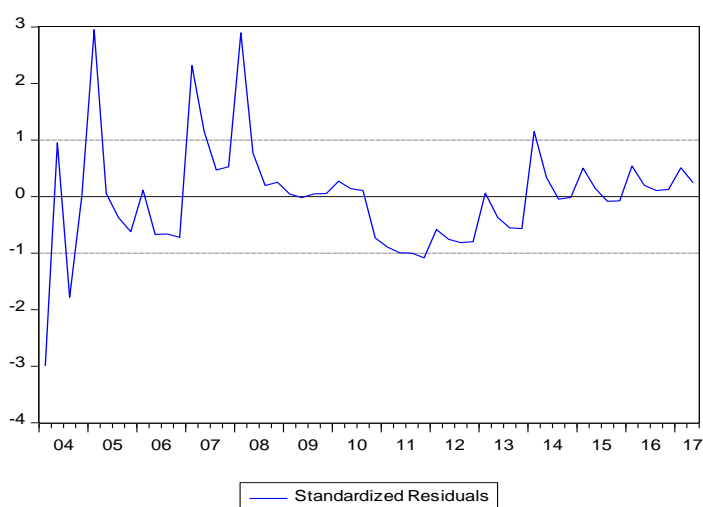| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.53	0.75	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.07	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.17	0.92	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	2.18	0.04	Reject null at the 5% level of significance.

28

g. Value Added of the Remote Gaming sector

Dependent Variable: DLOG(YVAV_RG)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.847784	0.384417	2.205377	0.0321
DLOG(YVAV_RG(-1))	-0.212297	0.123902	-1.713425	0.0928
Error Correction Term	-0.617097	0.145168	-4.250926	0.0001
LOG(XV_RG(-1))	-0.812375	0.045298	-17.93401	0.0000

R-squared	0.438637	Log likelihood		10.23444
Adjusted R-squared	0.404955	F-statistic		13.02297
S.E. of regression	0.208048	Prob(F-statistic)		0.000002
Sum squared resid	2.164206	Durbin-Watson stat		1.463292

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

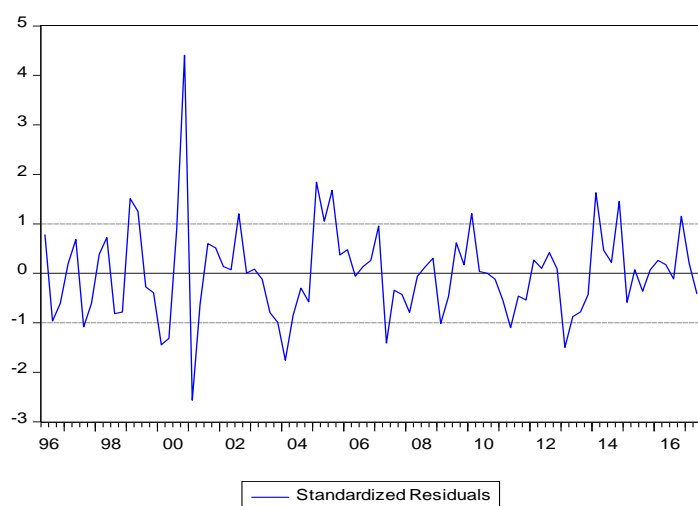| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.69	0.16	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.46	-	Accept null but indicates evidence of weak autocorrelation although within acceptable limits.
Jarque-Bera	H_0: Residuals are normally distributed	22.95	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.80	0.10	Accept null at the 5% level of significance.

h. Value Added of the Other Business Services sector

Dependent Variable: DLOG(YVAV_OBS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q2 2017Q2
Included observations: 85 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.515717	0.226563	2.276261	0.0256
DLOG(XV_OBS)	0.040302	0.025194	1.599699	0.1138
D2010ON	0.060643	0.023704	2.558316	0.0125
DLOG(YVAV_OBS(-4))	0.316284	0.105906	2.986471	0.0038
D00Q1ON	0.028681	0.016532	1.734872	0.0868
Error Correction Term	-0.375742	0.085842	-4.377121	0.0000
LOG(XV_OBS(-1))	-0.098405	0.059980	-1.640634	0.1050
LOG(YVAV_OBS(-5))	-0.773883	0.110803	-6.984339	0.0000

R-squared	0.262998	Log likelihood	171.2350
Adjusted R-squared	0.195998	F-statistic	3.925329
S.E. of regression	0.033910	Prob(F-statistic)	0.001036
Sum squared resid	0.088541	Durbin-Watson stat	1.799579

Residual Diagnostics of ECM Parsimonious Specification

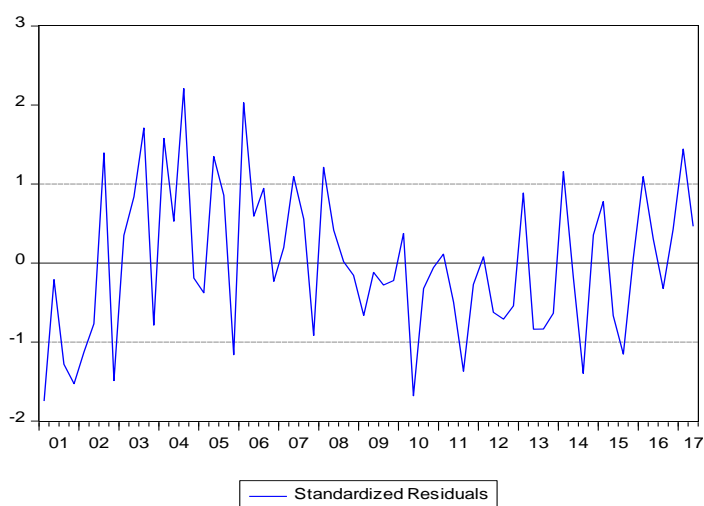| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H0: Residuals are serially uncorrelated	0.98	0.43	Accept null at 5% level of significance.
Durbin-Watson	H0: Residuals are not autocorrelated	1.80	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H0: Residuals are normally distributed	77.85	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H0: Homoskedastic residuals	1.05	0.40	Accept null at the 5% level of significance.

i. Value Added of the Public sector

Dependent Variable: DLOG(YVAV_PS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.345184	0.081015	4.260742	0.0001
DSPRING	0.009135	0.002181	4.188277	0.0001
DSUMMER	0.011130	0.002358	4.720367	0.0000
DLOG(COMPOFEMP_PS)	0.847127	0.052095	16.26110	0.0000
DLOG(YVAV_PS(-4))	0.221227	0.056184	3.937533	0.0003
Error Correction Term	-0.951333	0.118615	-8.020368	0.0000
LOG(COMPOFEMP_PS(-1))	-0.796558	0.059905	-13.29693	0.0000
LOG(YVAV_PS(-5))	-0.187425	0.064061	-2.925720	0.0053

R-squared	0.943772	Log likelihood	201.3483
Adjusted R-squared	0.935216	F-statistic	110.3000
S.E. of regression	0.006299	Prob(F-statistic)	0.000000
Sum squared resid	0.001825	Durbin-Watson stat	1.797139

Residual Diagnostics of ECM Parsimonious Specification

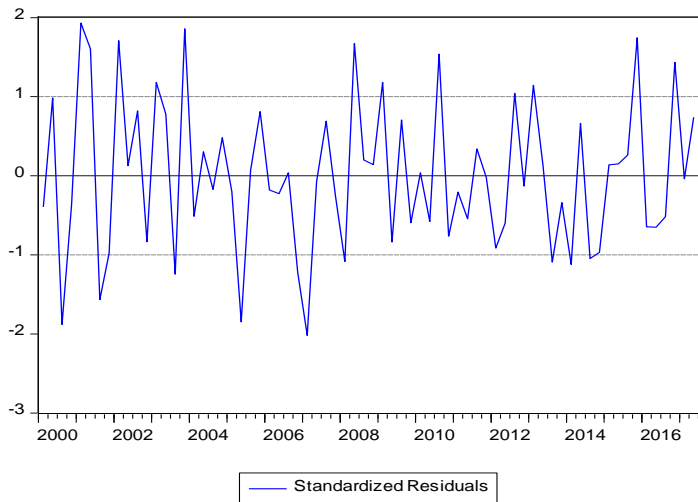| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.53	0.75	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.79	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.47	0.29	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.76	0.63	Accept null at the 5% level of significance.

j.   Value Added of the Tourism sector

Dependent Variable: DLOG(YVAV_TOUR)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.180405	0.427095	2.763803	0.0075
DLOG(XV_TOUR)	0.548174	0.032063	17.09654	0.0000
DAUTUMN	0.395555	0.033035	11.97370	0.0000
DWINTER	0.431868	0.038396	11.24784	0.0000
Error Correction Term	-0.308709	0.050257	-6.142636	0.0000
LOG(XV_TOUR(-1))	-0.542484	0.063270	-8.574100	0.0000
LOG(WGDPTV(-1))*D13ON	-0.028870	0.006182	-4.669993	0.0000

R-squared	0.954446	Log likelihood	159.3285
Adjusted R-squared	0.950107	F-statistic	219.9934
S.E. of regression	0.026190	Prob(F-statistic)	0.000000
Sum squared resid	0.043213	Durbin-Watson stat	2.312363

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.21	0.32	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.31	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.13	0.57	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.17	0.33	Accept null at the 5% level of significance.

## k. Value Added of the Financial and Insurance Services sector

Dependent Variable: DLOG(YVAV_FIS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1995Q3 2017Q2
Included observations: 88 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.033494	0.559624	3.633676	0.0005
DLOG(XV_FIS(-1))	0.102295	0.051161	1.999475	0.0490
DLOG(STG)	-0.613590	0.282856	-2.169267	0.0330
D00Q4ON	0.098236	0.047768	2.056543	0.0430
Error Correction Term	-0.333231	0.084024	-3.965899	0.0002
LOG(XV_FIS(-1))	-0.306461	0.055305	-5.541264	0.0000
LOG(INT(-1))	0.100049	0.017505	5.715334	0.0000
LOG(MSE(-1))	-0.275949	0.112519	-2.452475	0.0164

R-squared	0.262838	Log likelihood	81.75675
Adjusted R-squared	0.198336	F-statistic	4.074898
S.E. of regression	0.100225	Prob(F-statistic)	0.000719
Sum squared resid	0.803604	Durbin-Watson stat	2.260364
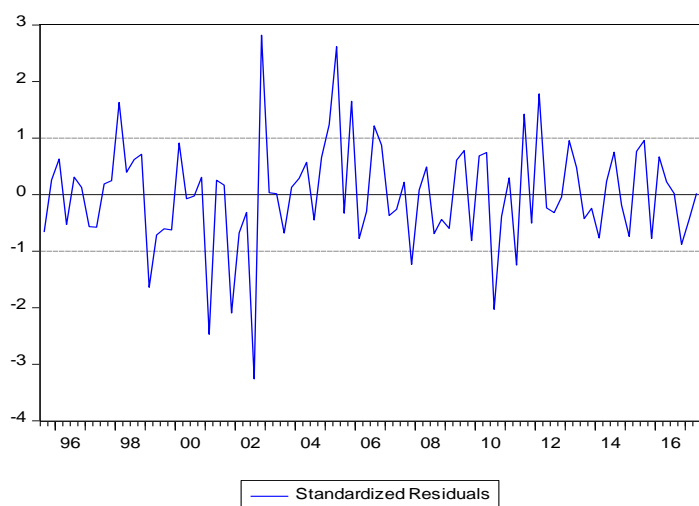
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

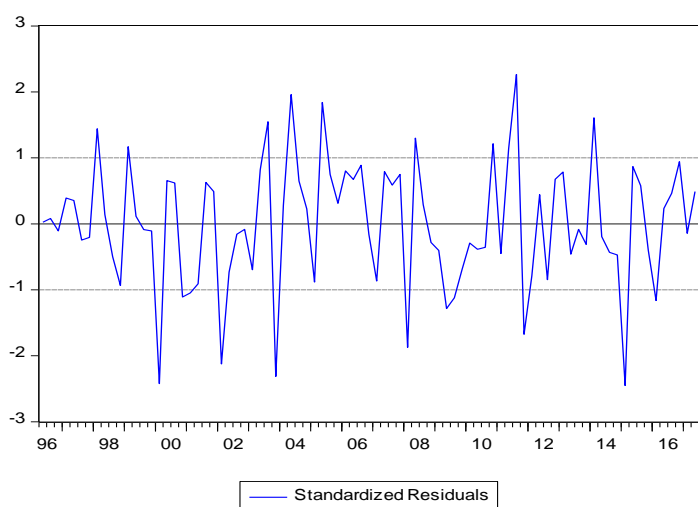| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.12	0.36	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.26	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	12.85	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.27	0.25	Accept null at 5% level of significance.

33

I.   Value Added of the Other Services sector

Dependent Variable: DLOG(YVAV_OS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q2 2017Q2
Included observations: 85 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.998308	0.188016	5.309695	0.0000
DLOG(YVAV_OS(-4))	0.385928	0.080404	4.799837	0.0000
D13Q1 – D2010ON	-0.057378	0.013170	-4.356619	0.0000
Error Correction Term	-0.391100	0.062716	-6.236053	0.0000
LOG(WGDPV(-1))	-1.173555	0.047230	-24.84741	0.0000
LOG(XV_OS(-1)) * D14ON	-0.019279	0.002607	-7.395158	0.0000

R-squared	0.478997	Log likelihood	175.0151
Adjusted R-squared	0.446022	F-statistic	14.52612
S.E. of regression	0.032022	Prob(F-statistic)	0.000000
Sum squared resid	0.081006	Durbin-Watson stat	2.077954

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.32	0.05	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.08	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.67	0.43	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.69	0.11	Accept null at the 5% level of significance.

3. Labour Market Block

### a. Employment in the Real estate and Construction activities sector

Dependent Variable: DLOG(YE0_RCONS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.995492	0.428666	6.987939	0.0000
DLOG(YVAV_RCONS)	0.166311	0.047256	3.519394	0.0008
D06EURO – D12ON	0.024562	0.004109	5.977494	0.0000
D12Q1Q2	0.017664	0.008108	2.178691	0.0332
Error Correction Term	-0.521248	0.054513	-9.561901	0.0000
LOG(YVAV_RCONS(-1))	-0.117032	0.041945	-2.790102	0.0070
LOG(AWG(-1))	-0.184685	0.054654	-3.379150	0.0013
LOG(SCV(-1))	-0.132769	0.057054	-2.327073	0.0232

R-squared	0.756827	Log likelihood	223.8130
Adjusted R-squared	0.729372	F-statistic	27.56613
S.E. of regression	0.010508	Prob(F-statistic)	0.000000
Sum squared resid	0.006846	Durbin-Watson stat	1.694766
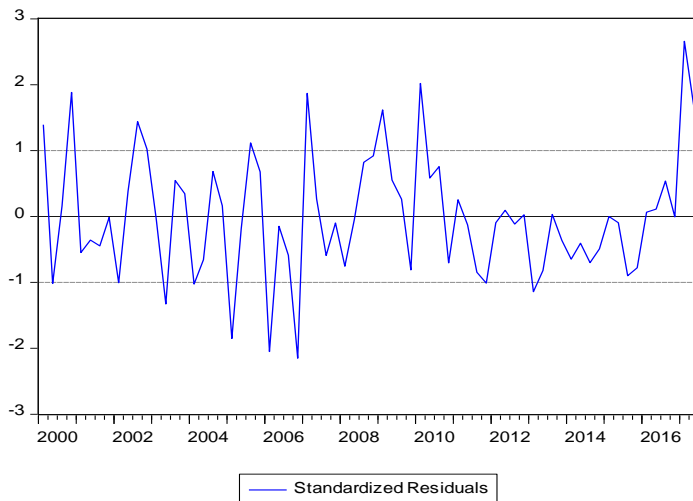
Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.75	0.59	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.69	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.02	0.36	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	2.05	0.06	Accept null at the 5% level of significance.

## b. Employment in the Wholesale and Retail Trade sector

Dependent Variable: DLOG(YE0_WRT)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.168386	0.324671	0.518637	0.6058
DLOG(YVAV_WRT)	0.191292	0.042386	4.513131	0.0000
Error Correction Term	-0.116505	0.050736	-2.296283	0.0249
LOG(YVAV_WRT(-1))	-0.773145	0.215854	-3.581796	0.0007
LOG(AWP(-1))	0.435411	0.227022	1.917924	0.0595

R-squared	0.281740	Log likelihood	213.3973
Adjusted R-squared	0.237540	F-statistic	6.374131
S.E. of regression	0.011910	Prob(F-statistic)	0.000217
Sum squared resid	0.009219	Durbin-Watson stat	2.171954
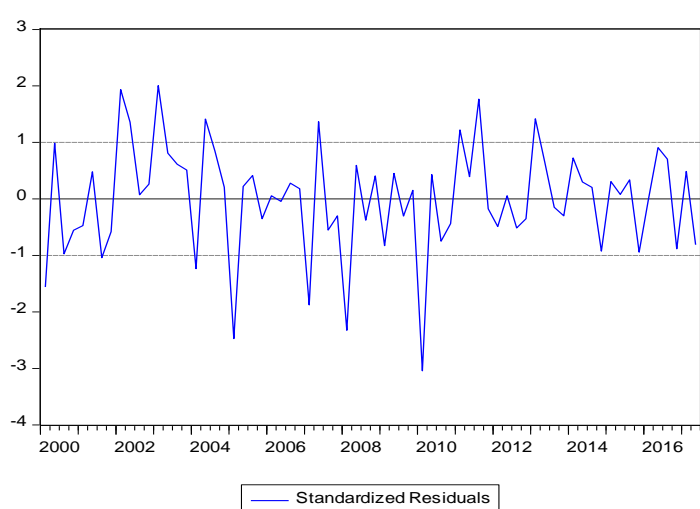
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

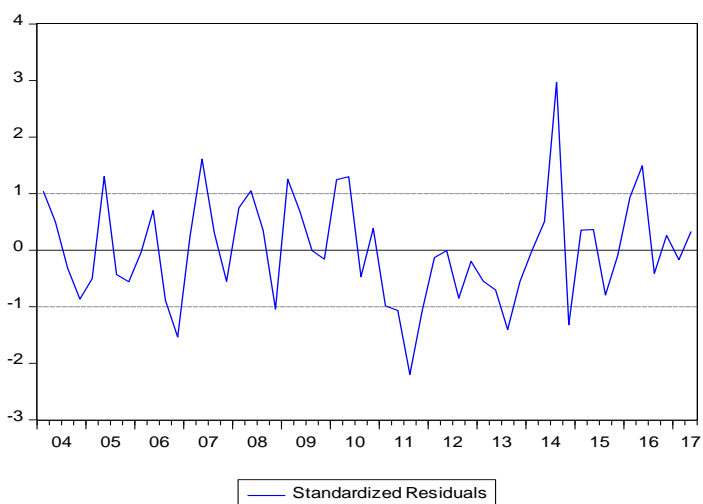| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.06	0.39	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.17	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	6.79	0.03	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.58	0.18	Accept null at the 5% level of significance.

36

c. Employment in the Other Domestic sectors

Dependent Variable: DLOG(YE0_OD)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.516528	0.566107	2.678873	0.0101
DLOG(YVAV_OD)	0.060719	0.019823	3.063055	0.0036
(1-D_SUP)	0.019413	0.009913	1.958290	0.0561
D12ON	-0.023592	0.010774	-2.189790	0.0335
Error Correction Term	-0.638802	0.122057	-5.233644	0.0000
LOG(YVAV_OD(-1))	-0.072363	0.033221	-2.178204	0.0344
LOG(IFE(-1))	-0.500014	0.079389	-6.298283	0.0000

R-squared	0.434594	Log likelihood	157.7081
Adjusted R-squared	0.362414	F-statistic	6.021014
S.E. of regression	0.013981	Prob(F-statistic)	0.000099
Sum squared resid	0.009187	Durbin-Watson stat	1.666592

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

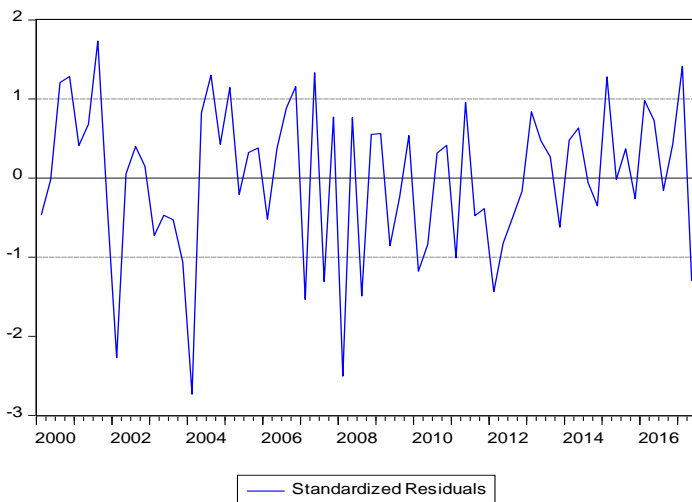| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H$_0$: Residuals are serially uncorrelated	0.97	0.45	Accept null at 5% level of significance.
Durbin-Watson	H$_0$: Residuals are not autocorrelated	1.67	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H$_0$: Residuals are normally distributed	2.46	0.29	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H$_0$: Homoskedastic residuals	1.14	0.35	Accept null at the 5% level of significance.

d. Employment in the Manufacturing sector

Dependent Variable: LOG(YE0_MANUF)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.198383	0.652847	3.367378	0.0013
LOG(YVAV_CHEMPHAR+YVAV_EM+YVAV_OG)	0.069015	0.026065	2.647827	0.0102
LOG(AWP)	-0.070298	0.031691	-2.218248	0.0302
D09EM	-0.020986	0.007605	-2.759378	0.0076
D04ON	-0.029644	0.008259	-3.589220	0.0006
Error Correction Term LOG(YVAV_CHEMPHAR(-1)+YVAV_EM(-1)+YVAV_OG(-1))	0.833457	0.044349	18.79305	0.0000
	-0.123592	0.027966	-4.419380	0.0000

R-squared	0.994337	Log likelihood	211.8396
Adjusted R-squared	0.993797	F-statistic	1843.558
S.E. of regression	0.012369	Prob(F-statistic)	0.000000
Sum squared resid	0.009639	Durbin-Watson stat	2.120514

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

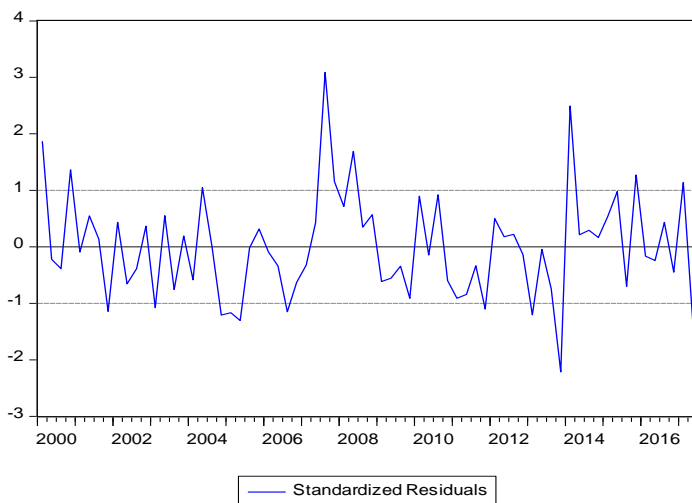| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.15	0.35	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.12	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	5.63	0.06	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.71	0.09	Accept null at the 5% level of significance.

e. Employment in the Tourism sector

Dependent Variable: DLOG(YE0_TOUR)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.438607	0.528667	4.612743	0.0000
DSPING	0.034379	0.008614	3.991118	0.0002
DLOG(YE0_TOUR(-4))	0.480203	0.094664	5.072689	0.0000
Error Correction Term	-0.322259	0.061480	-5.241660	0.0000
LOG(YVAV_TOUR(-1))	-0.146761	0.056947	-2.577156	0.0124
LOG(AWP(-1))	-0.218669	0.115285	-1.896757	0.0626
LOG(YVAV_TOUR(-1))*D0507	-0.006657	0.002170	-3.068195	0.0032
LOG(YVAV_TOUR(-1))*(1 – D_SUP)	-0.007474	0.002968	-2.518671	0.0144

R-squared	0.904228	Log likelihood	207.2440
Adjusted R-squared	0.891668	F-statistic	71.99103
S.E. of regression	0.013423	Prob(F-statistic)	0.000000
Sum squared resid	0.010991	Durbin-Watson stat	1.875728

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.59	0.71	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.88	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	3.82	0.15	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.66	0.74	Accept null at the 5% level of significance.

## f. Employment in the Other Business Services sector

Dependent Variable: DLOG(YE0_OBS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-2.896729	0.591121	-4.900398	0.0000
DLOG(YVAV_FIS)	0.034721	0.018541	1.872708	0.0659
DLOG(YVAV_OBS)	0.375661	0.063160	5.947813	0.0000
D0507	0.037026	0.007718	4.797108	0.0000
Error Correction Term	-0.328465	0.054943	-5.978301	0.0000
LOG(IFE(-1))	-1.266246	0.134127	-9.440630	0.0000
LOG(IFE(-1)) * D2011ON	0.007097	0.002394	2.963784	0.0043
LOG(YVAV_RG(-1))	-0.068904	0.023920	-2.880565	0.0055

R-squared	0.657965	Log likelihood	185.9266
Adjusted R-squared	0.613108	F-statistic	14.66804
S.E. of regression	0.018202	Prob(F-statistic)	0.000000
Sum squared resid	0.020210	Durbin-Watson stat	1.901660
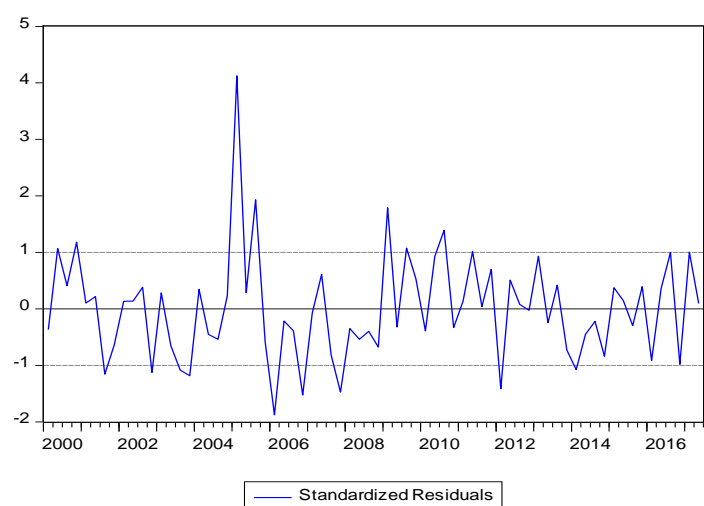
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

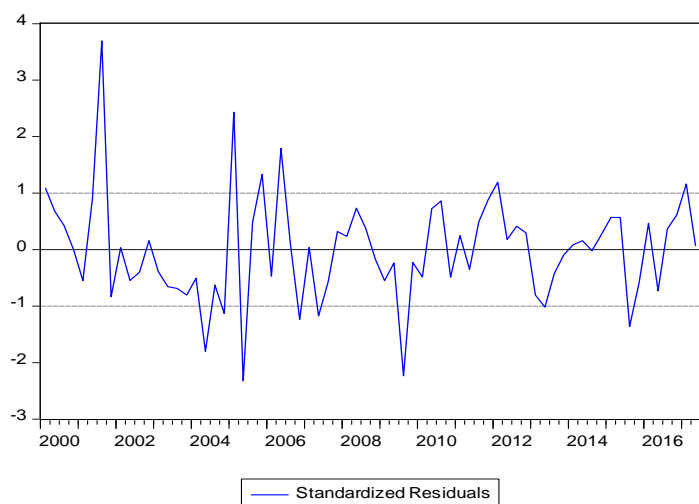| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.87	0.51	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.90	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	60.28	0.03	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	2.00	0.05	Accept null at 5% level of significance.

g. Employment in the Remote Gaming sector

Dependent Variable: DLOG(YE0_RG)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.825068	0.150708	5.474609	0.0000
DLOG(AW(-4))	0.444549	0.235889	1.884569	0.0641
D06EURO	0.091695	0.020974	4.371775	0.0000
D15Q3ON	0.078210	0.019128	4.088791	0.0001
Error Correction Term	-0.275175	0.052415	-5.249895	0.0000
LOG(YVAV_RG(-5))	-0.099992	0.062439	-1.601454	0.1143
LOG(AW(-1))	-2.355711	0.374932	-6.283042	0.0000

R-squared	0.393187	Log likelihood	135.9516
Adjusted R-squared	0.335396	F-statistic	6.803528
S.E. of regression	0.036574	Prob(F-statistic)	0.000014
Sum squared resid	0.084271	Durbin-Watson stat	1.972928

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.54	0.74	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.97	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	25.83	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.27	0.28	Accept null at the 5% level of significance.

41

h. Employment in the Financial and Insurance activities sector

Dependent Variable: LOG(YE0_FIS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 01/16/18   Time: 14:57
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.022745	0.161328	0.140985	0.8884
LOG(YVAV_FIS)	0.018711	0.013364	1.400162	0.1675
LOG(YE0_FIS(-1))	0.973636	0.030083	32.36504	0.0000

R-squared	0.986034	Log likelihood	156.6275
Adjusted R-squared	0.985486	F-statistic	1800.382
S.E. of regression	0.013693	Prob(F-statistic)	0.000000
Sum squared resid	0.009562	Durbin-Watson stat	1.976756
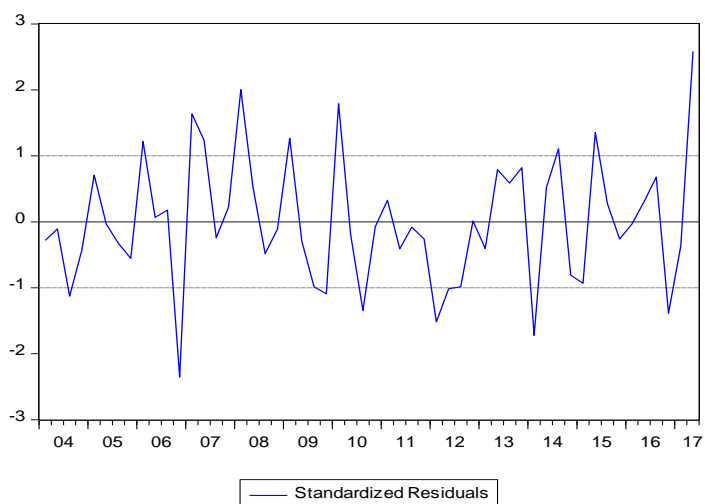
— Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

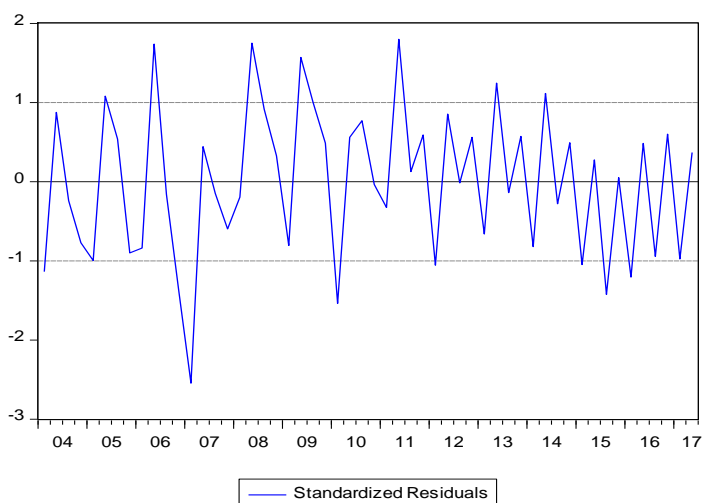| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	3.17	0.05	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.98	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.61	0.74	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.89	0.16	Accept null at the 5% level of significance.

42

i. Employment in the Other Services sector

Dependent Variable: LOG(YE0_OS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.436354	0.736567	-1.950065	0.0570
LOG(YVAV_OS)	0.152876	0.111791	1.367517	0.1778
LOG(IFE)	0.570627	0.152324	3.746137	0.0005
DSUMMER	0.098720	0.014874	6.636940	0.0000
LOG(YVAV_FIS)	0.124352	0.044517	2.793353	0.0075
DWINTER	-0.058667	0.014607	-4.016339	0.0002

R-squared	0.959692	Log likelihood	96.12004
Adjusted R-squared	0.955493	F-statistic	228.5636
S.E. of regression	0.043281	Prob(F-statistic)	0.000000
Sum squared resid	0.089915	Durbin-Watson stat	2.286627

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

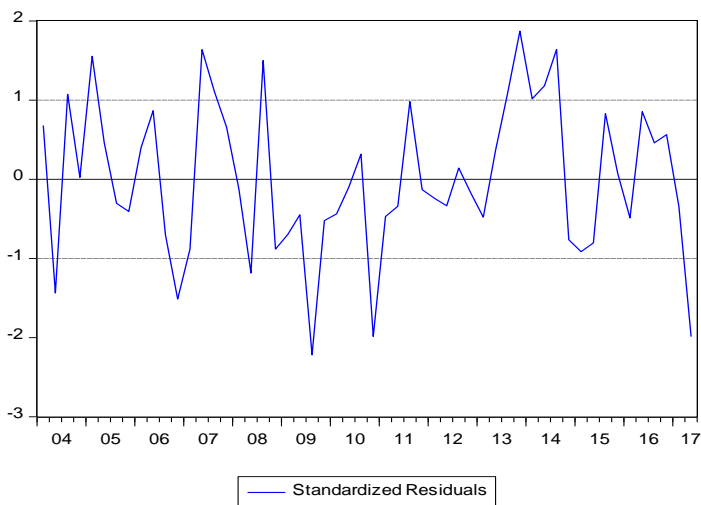| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.41	0.25	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.29	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.57	0.75	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.28	0.28	Accept null at the 5% level of significance.

j. Employment

Dependent Variable: LOG(SE_LFS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	3.715582	0.795313	4.671848	0.0000
LOG(SE_LFS(-4))	0.538007	0.096722	5.562401	0.0000
LOG(AW)	0.115892	0.044120	2.626751	0.0114
LOG(GDPFCV)	0.118470	0.037941	3.122511	0.0030

R-squared	0.988857	Log likelihood	177.5601
Adjusted R-squared	0.988189	F-statistic	1479.055
S.E. of regression	0.009385	Prob(F-statistic)	0.000000
Sum squared resid	0.004404	Durbin-Watson stat	1.539456

Residual Diagnostics of ECM Parsimonious Specification

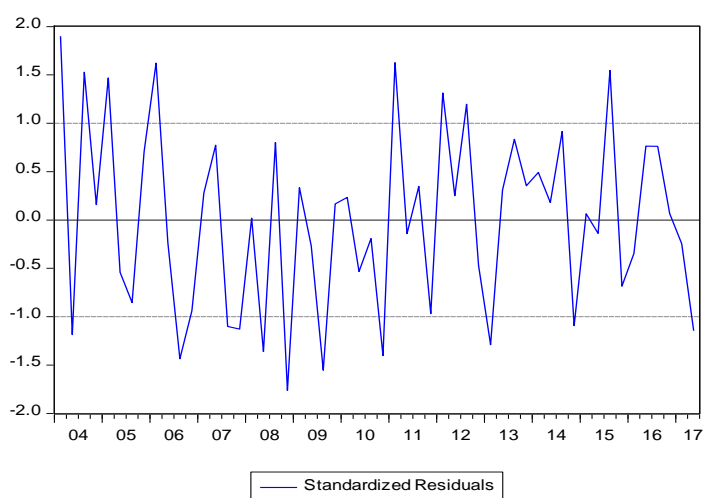| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.26	0.30	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.54	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.60	0.74	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	2.24	0.10	Accept null at the 5% level of significance.

k. Labour Force Participation Rate

Dependent Variable: DLOG(SLFR_LFS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-3.383667	1.081271	-3.129341	0.0030
DLOG(SE)	0.380044	0.109675	3.465192	0.0011
DLOG(EFTR)	-0.107855	0.053484	-2.016571	0.0494
Error Correction Term	-0.509792	0.120841	-4.218699	0.0001
LOG(AWG(-1))	-0.156127	0.059581	-2.620426	0.0117
LOG(SE(-1))	-0.487329	0.101697	-4.791983	0.0000

R-squared	0.438828	Log likelihood	174.4549
Adjusted R-squared	0.380373	F-statistic	7.507065
S.E. of regression	0.010146	Prob(F-statistic)	0.000028
Sum squared resid	0.004941	Durbin-Watson stat	2.268719

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H₀: Residuals are serially uncorrelated	3.35	0.05	Accept null at 5% level of significance.
Durbin-Watson	H₀: Residuals are not autocorrelated	2.27	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H₀: Residuals are normally distributed	1.71	0.42	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H₀: Homoskedastic residuals	1.17	0.34	Accept null at the 5% level of significance.

4. Prices Block

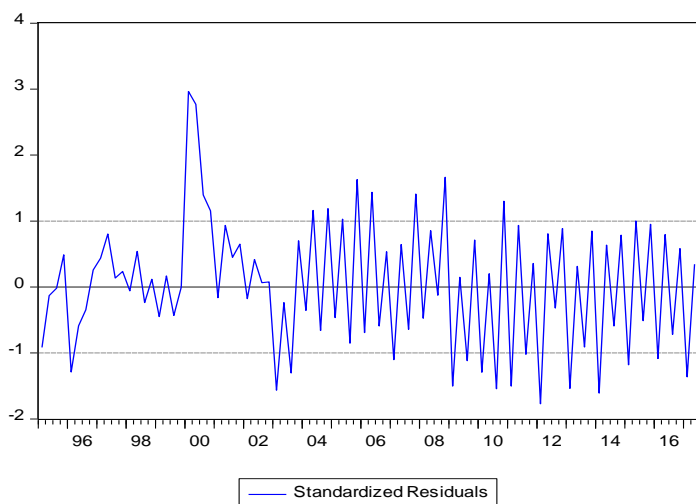### a. Prices of Industrial Goods

Dependent Variable: LOG(HICP_IND)
Method: ARMA Maximum Likelihood (BFGS)
Sample: 1995Q1 2017Q2
Included observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.126338	0.021544	-5.864165	0.0000
Trend	0.002477	0.000338	7.326973	0.0000
Autoregressive (1)	0.954242	0.044255	21.56256	0.0000
Moving Average (1)	-0.639890	0.089347	-7.161889	0.0000

R-squared	0.941937	Log likelihood		246.2003
Adjusted R-squared	0.939205	F-statistic		344.7315
S.E. of regression	0.016054	Prob(F-statistic)		0.000000
Sum squared resid	0.021908	Durbin-Watson stat		2.612975

Inverted AR Roots	.95
Inverted MA Roots	.64

Standardized Residuals
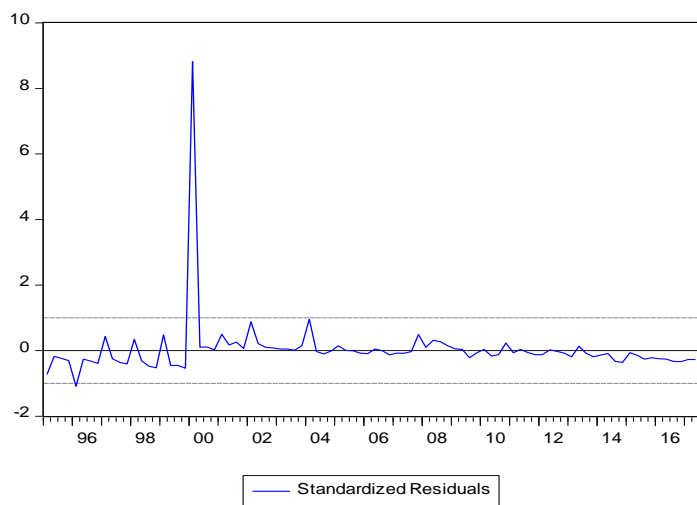
Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	-	-	-
Durbin-Watson	H_0: Residuals are not autocorrelated	2.61	-	Reject the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.08	0.58	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.35	0.56	Accept null at the 5% level of significance.

b. Prices of Processed Food

Dependent Variable: LOG(HICP_PROCFD)
Method: ARMA Maximum Likelihood (BFGS)
Date: 01/16/18   Time: 09:39
Sample: 1995Q1 2017Q2
Included observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.605986	0.137024	-4.422492	0.0000
Trend	0.011834	0.004699	2.518364	0.0136
Autoregressive (1)	0.933861	0.111966	8.340573	0.0000

R-squared	0.986997	Log likelihood		166.7620
Adjusted R-squared	0.986543	F-statistic		2175.937
S.E. of regression	0.038368	Prob(F-statistic)		0.000000
Sum squared resid	0.126598	Durbin-Watson stat		2.017834

Inverted AR Roots	.93

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

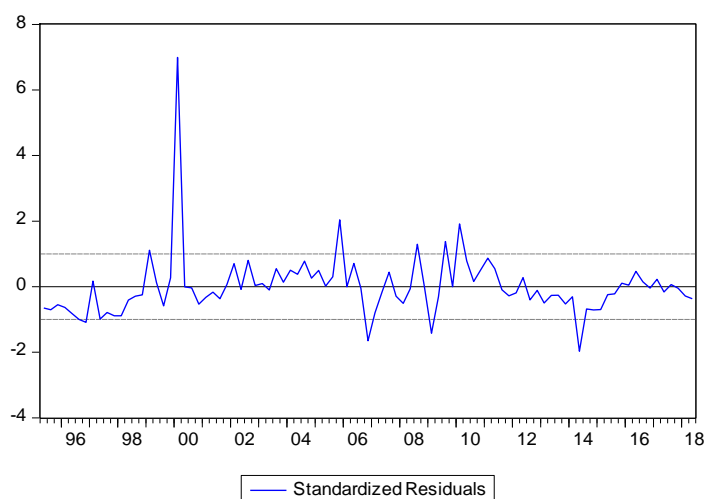| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	-	-	-
Durbin-Watson	H_0: Residuals are not autocorrelated	2.01	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	191.5	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.03	0.31	Accept null at the 5% level of significance.

c. Energy Prices

Dependent Variable: LOG(HICP_EN)
Method: Least Squares
Sample (adjusted): 1995Q2 2018Q2
Included observations: 93 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.397163	0.120260	-3.302525	0.0014
Trend	0.000951	0.000613	1.550164	0.1247
LOG(WOILP(-1)/DEX(-1))	0.098942	0.028511	3.470301	0.0008
Autoregressive (1)	0.818027	0.054676	14.96149	0.0000

R-squared	0.988369	Log likelihood	142.6529
Adjusted R-squared	0.987977	F-statistic	2520.943
S.E. of regression	0.053351	Prob(F-statistic)	0.000000
Sum squared resid	0.253325	Durbin-Watson stat	1.610024

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

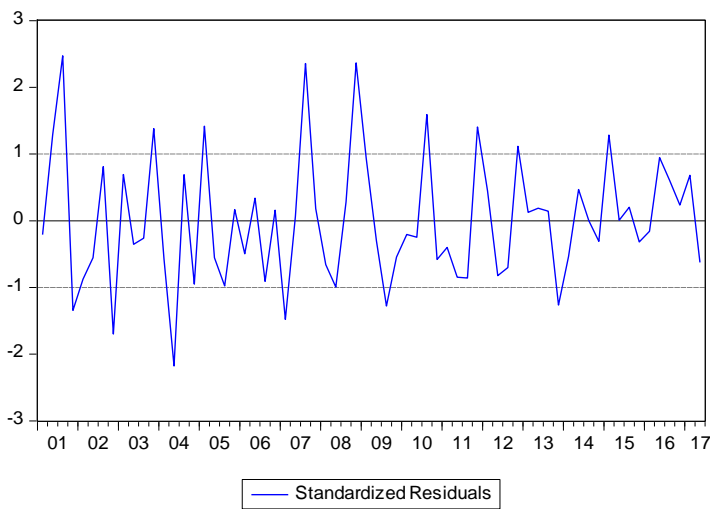| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	-	-	-
Durbin-Watson	H_0: Residuals are not autocorrelated	1.61	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2849.86	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.90	0.44	Accept null at the 5% level of significance.

d. Prices of Unprocessed Food

Dependent Variable: LOG(HICP_UNPROCFD)
Method: Least Squares
Sample: 2001Q1 2017Q2
Included observations: 66

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.004003	0.005581	-0.717163	0.4760
DWINTER	0.045556	0.007977	5.711177	0.0000
DAUTUMN	0.032018	0.008694	3.682576	0.0005
LOG(HICP_UNPROCFD(-1))	0.978347	0.017591	55.61555	0.0000
LOG(MP_GDS)	0.118599	0.052061	2.278087	0.0262

R-squared	0.983112	Log likelihood	149.5160
Adjusted R-squared	0.982005	F-statistic	887.7657
S.E. of regression	0.026123	Prob(F-statistic)	0.000000
Sum squared resid	0.041627	Durbin-Watson stat	2.087800

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

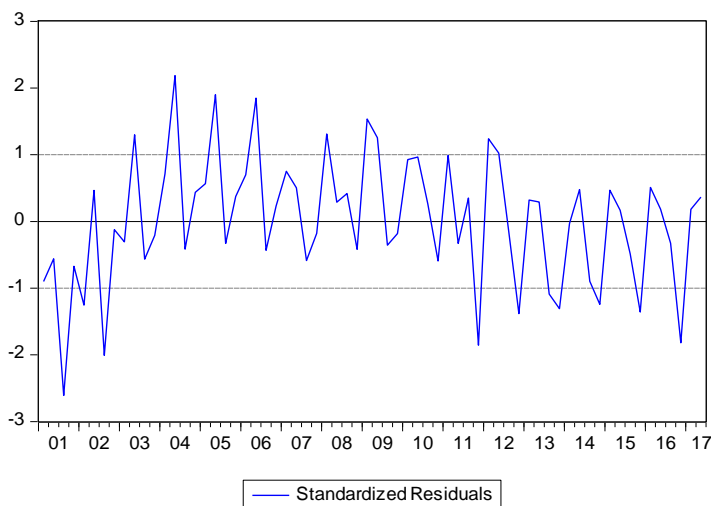| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H₀: Residuals are serially uncorrelated	1.14	0.71	Accept null at 5% level of significance.
Durbin-Watson	H₀: Residuals are not autocorrelated	2.09	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H₀: Residuals are normally distributed	2.91	0.23	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H₀: Homoskedastic residuals	1.85	0.12	Accept null at the 5% level of significance.

e. Services Prices

Dependent Variable: LOG(HICP_SERV)
Method: Least Squares
Sample: 2001Q1 2017Q2
Included observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.086941	0.004421	19.66414	0.0000
LOG(MP_SERV)	0.631239	0.028057	22.49868	0.0000
DSUMMER	0.055917	0.004639	12.05281	0.0000
DAUTUMN	-0.069592	0.004626	-15.04224	0.0000
MA(1)	0.748934	0.073074	10.24897	0.0000

R-squared	0.968236	Log likelihood		168.7476
Adjusted R-squared	0.966154	F-statistic		464.8602
S.E. of regression	0.019520	Prob(F-statistic)		0.000000
Sum squared resid	0.023242	Durbin-Watson stat		1.833944

Inverted MA Roots	-.75	

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

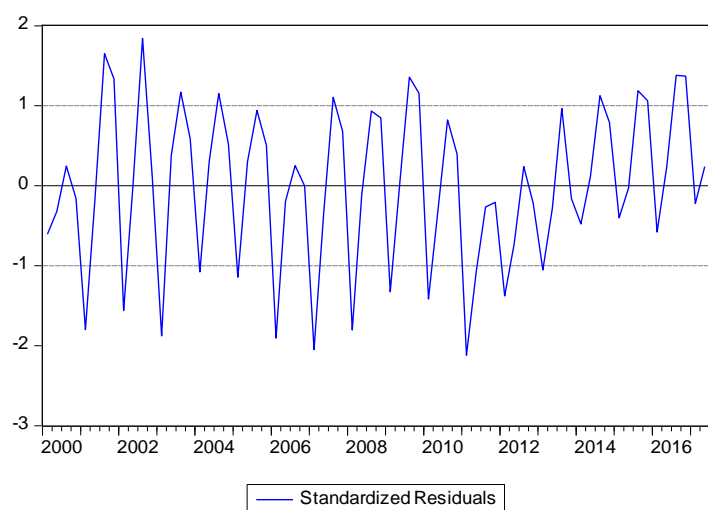| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H₀: Residuals are serially uncorrelated	0.77	0.39	Accept null at 5% level of significance.
Durbin-Watson	H₀: Residuals are not autocorrelated	1.83	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H₀: Residuals are normally distributed	0.61	0.74	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H₀: Homoskedastic residuals	0.84	0.46	Accept null at the 5% level of significance.

f. Retail Prices of the Tradable Sector

Dependent Variable: LOG(RP_TRADED)
Method: Least Squares
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.227049	0.043421	-5.229045	0.0000
LOG(MP_GDS+MP_SERV)	0.544197	0.090511	6.012520	0.0000
LOG(RP_TRADED(-1))	0.535632	0.075248	7.118217	0.0000
R-squared	0.902075	Log likelihood		132.2095
Adjusted R-squared	0.899152	F-statistic		308.6000
S.E. of regression	0.037413	Prob(F-statistic)		0.000000
Sum squared resid	0.093781	Durbin-Watson stat		1.808029

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

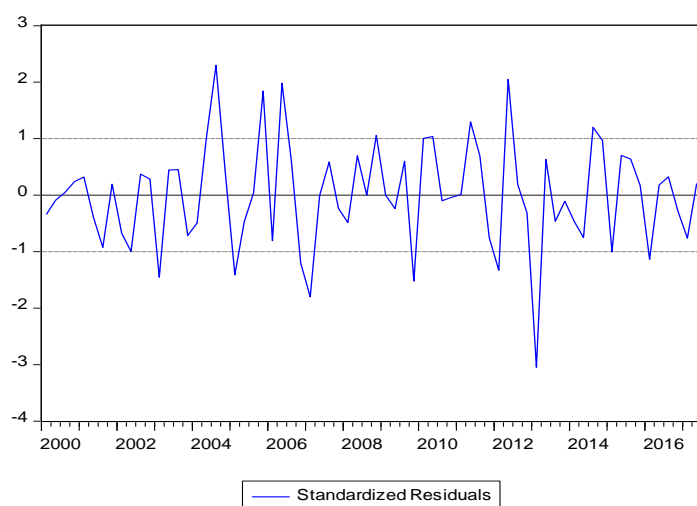| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.35	0.25	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.81	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.60	0.27	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.99	0.12	Accept null at the 5% level of significance.

g. Retail Prices of the Non-Tradable Sector

Dependent Variable: DLOG(RP_NONTRADED)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.053284	0.032316	-1.648854	0.1043
D09Q1	-0.043321	0.012005	-3.608723	0.0006
D08Q3	0.030939	0.011728	2.638103	0.0106
DWINTER	-0.011256	0.003429	-3.282411	0.0017
Error Correction Term	-0.145549	0.057758	-2.519993	0.0144
LOG(AWG(-1))	-0.509439	0.127368	-3.999733	0.0002
D14ON	0.152895	0.049392	3.095555	0.0030
LOG(AWG(-1))*(1-D06EURO)	0.047255	0.029154	1.620895	0.1102
D05	-0.122765	0.049306	-2.489877	0.0155

R-squared	0.517567	Log likelihood	218.3205
Adjusted R-squared	0.454297	F-statistic	8.180306
S.E. of regression	0.011459	Prob(F-statistic)	0.000000
Sum squared resid	0.008010	Durbin-Watson stat	2.093946

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	-	-	-
Durbin-Watson	H_0: Residuals are not autocorrelated	2.09	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	2.54	0.28	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.99	0.45	Accept null at the 5% level of significance.

5. Final Expenditure Block

a. Real Private Consumption Expenditure

Dependent Variable: DLOG(SC)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 1996Q3 2017Q2
Included observations: 84 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.796011	0.275691	2.887326	0.0050
DLOG(WAGE*(1-EFTR)/SCP)	0.751940	0.120046	6.263785	0.0000
DLOG(SC(-4))	0.559091	0.078991	7.077948	0.0000
Error Correction Term	-0.366131	0.076533	-4.783946	0.0000
LOG(WAGE(-1))*(1-EFTR(-1))/SCP(-1))	-0.283123	0.116957	-2.420740	0.0178
LOG(SC(-5))	-0.569620	0.131408	-4.334733	0.0000
R-squared	0.583015	Log likelihood		171.7175
Adjusted R-squared	0.556285	F-statistic		21.81139
S.E. of regression	0.032512	Prob(F-statistic)		0.000000
Sum squared resid	0.082449	Durbin-Watson stat		2.091154
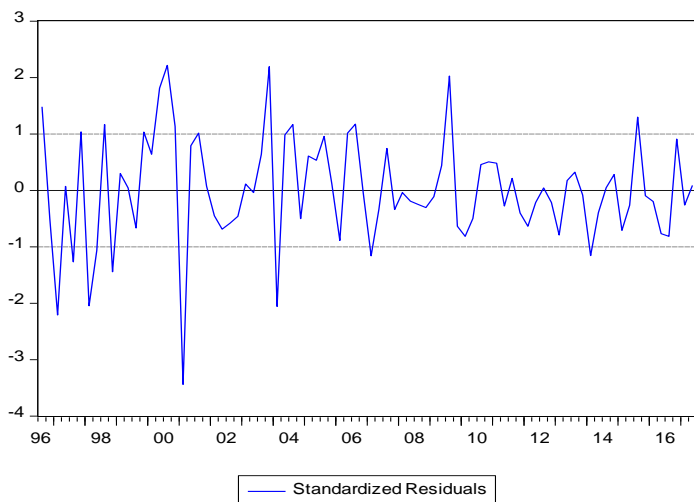
Residual Diagnostics of ECM Parsimonious Specification

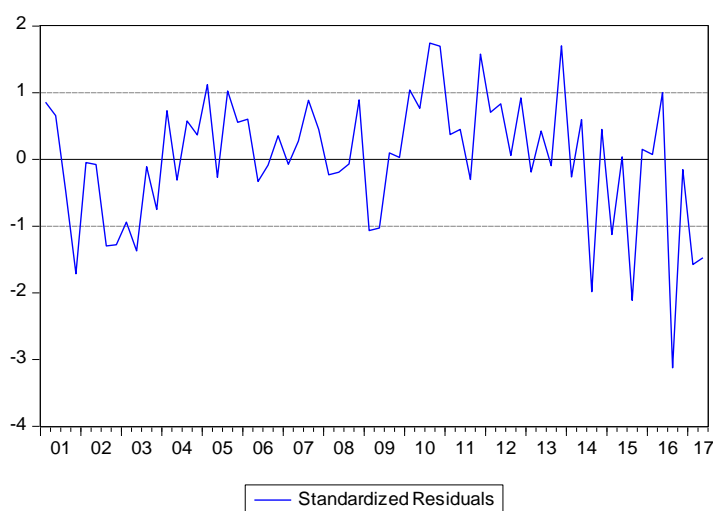| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.13	0.07	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.09	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	7.87	0.02	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	5.87	0.00	Reject null at the 5% level of significance.

b. Private Consumption Deflator

Dependent Variable: LOG(SCP)
Method: Least Squares
Sample: 2001Q1 2017Q2
Included observations: 66

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.285186	0.032844	-8.683116	0.0000
LOG(RPI)	0.737535	0.084472	8.731106	0.0000
DSPRING	0.030413	0.003376	9.008376	0.0000
DAUTUMN	0.043352	0.004473	9.691150	0.0000
LOG(SCP(-1))	0.216747	0.087978	2.463658	0.0166

R-squared	0.998012	Log likelihood		267.0527
Adjusted R-squared	0.997881	F-statistic		7654.643
S.E. of regression	0.004402	Prob(F-statistic)		0.000000
Sum squared resid	0.001182	Durbin-Watson stat		1.658050

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

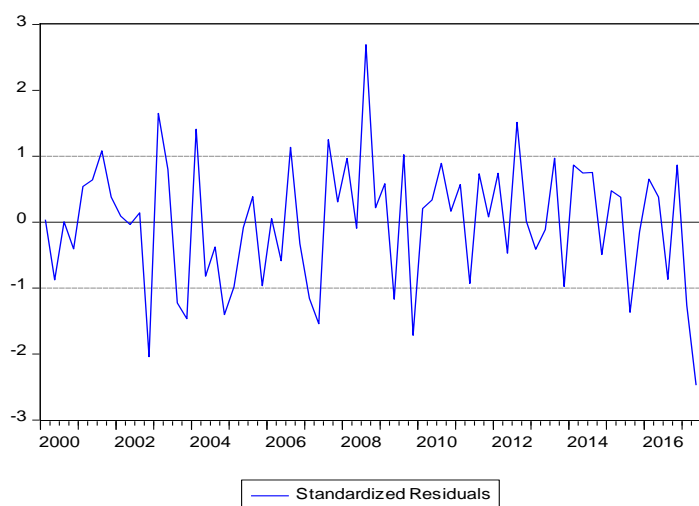| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H$_0$: Residuals are serially uncorrelated	1.74	0.19	Accept null at 5% level of significance.
Durbin-Watson	H$_0$: Residuals are not autocorrelated	1.66	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H$_0$: Residuals are normally distributed	4.83	0.09	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H$_0$: Homoskedastic residuals	3.14	0.05	Accept null at the 5% level of significance.

54

c. Public Consumption Expenditure

Dependent Variable: DLOG(SGV)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.720955	0.224457	3.212001	0.0021
DLOG(COMPOFEMP_PS+INTCOMP_PS)	0.153336	0.018216	8.417539	0.0000
D16Q3-Q4	-0.125640	0.024032	-5.228099	0.0000
DLOG(SGV(-1))	-0.254022	0.079720	-3.186423	0.0022
LOG(SGV(-1))	-0.406046	0.089812	-4.521088	0.0000
LOG(COMPOFEMP_PS(-1)+INTCOMP_PS(-1))	-0.861755	0.029942	-28.78069	0.0000

R-squared	0.659574	Log likelihood	147.7601
Adjusted R-squared	0.632978	F-statistic	24.79995
S.E. of regression	0.030654	Prob(F-statistic)	0.000000
Sum squared resid	0.060139	Durbin-Watson stat	2.131736

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

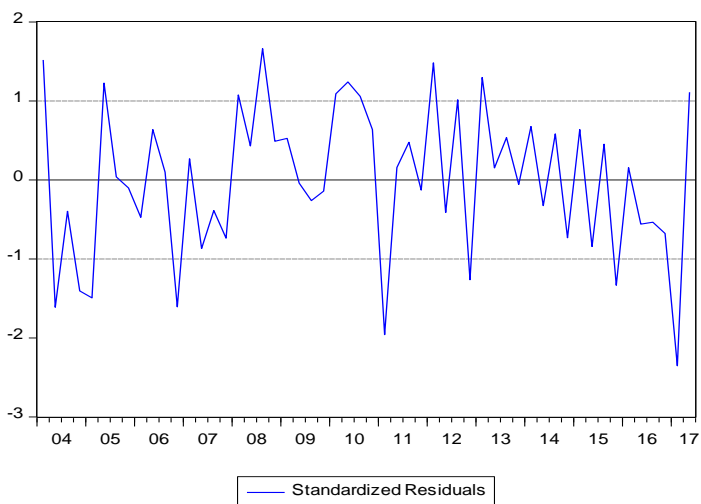| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.27	0.14	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.13	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.33	0.85	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.36	0.23	Accept null at the 5% level of significance.

d. Public Consumption Deflator

Dependent Variable: DLOG(SGP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.434032	0.100702	-4.310079	0.0001
DLOG(AWG)	0.185374	0.055192	3.358689	0.0015
DLOG(SGP(-4))	0.478366	0.099596	4.803065	0.0000
Error Correction Term	-0.423531	0.093562	-4.526742	0.0000
LOG(RPI(-1))	-0.240696	0.081924	-2.938043	0.0051
LOG(AWG(-1))	-0.543231	0.045768	-11.86928	0.0000

R-squared	0.756489	Log likelihood	194.5519
Adjusted R-squared	0.731123	F-statistic	29.82324
S.E. of regression	0.006993	Prob(F-statistic)	0.000000
Sum squared resid	0.002347	Durbin-Watson stat	2.159694

— Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

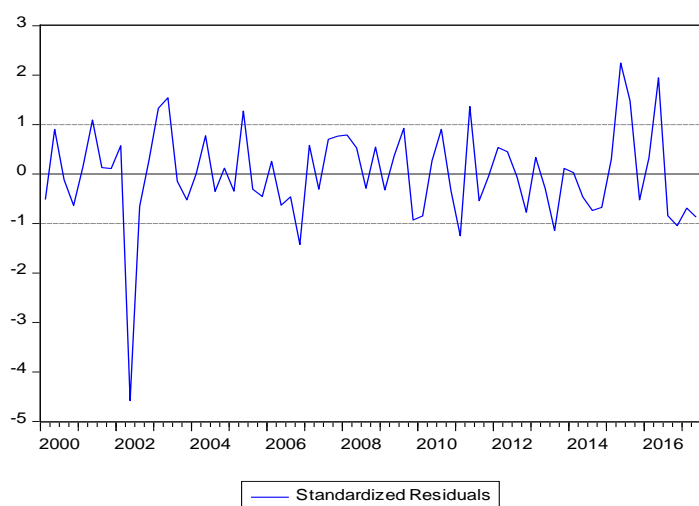| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.12	0.30	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.16	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.73	0.42	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.33	0.26	Accept null at the 5% level of significance.

e. Private Gross Fixed Capital Formation

Dependent Variable: DLOG(KV_NONGOV)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	5.053705	1.179355	4.285144	0.0001
DLOG(MSE)	0.468139	0.178363	2.624644	0.0109
D10EM	0.156222	0.067042	2.330213	0.0230
Error Correction Term	-0.737283	0.112603	-6.547635	0.0000
LOG(LRINT_MT(-1))	0.367343	0.061521	5.971056	0.0000
LOG(MSE(-1))	-0.275001	0.082475	-3.334346	0.0014
LOG(SXV(-1))	-0.265493	0.077242	-3.437140	0.0010
R-squared	0.434323	Log likelihood		50.39350
Adjusted R-squared	0.380449	F-statistic		8.061819
S.E. of regression	0.124162	Prob(F-statistic)		0.000002
Sum squared resid	0.971226	Durbin-Watson stat		1.840019

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

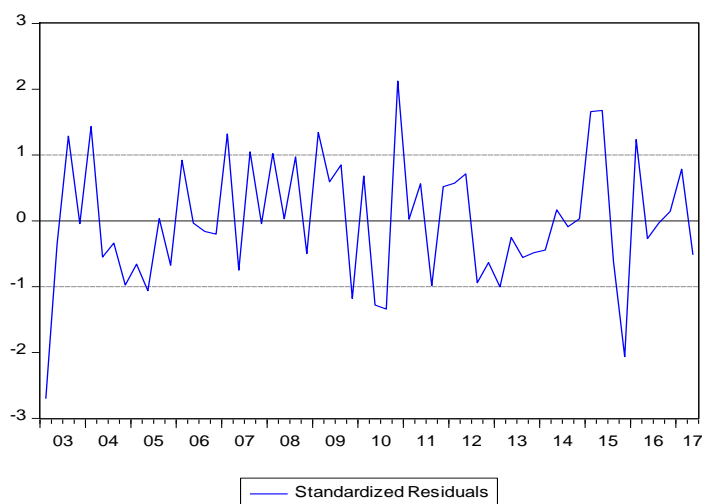| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.47	0.23	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.84	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	126.60	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.59	0.74	Accept null at the 5% level of significance.

f. Gross Fixed Capital Formation Deflator

Dependent Variable: DLOG(SKP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2003Q1 2017Q2
Included observations: 58

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.005273	0.001318	4.000745	0.0002
DLOG(SKP(-1))	0.569288	0.137816	4.130789	0.0001
Error Correction Term	-0.116060	0.051164	-2.268376	0.0275
LOG(SMP(-1))	-0.445758	0.232297	-1.918912	0.0605
LOG(SKP(-5))	-0.810591	0.158221	-5.123145	0.0000

R-squared	0.444397	Log likelihood	216.8331
Adjusted R-squared	0.390973	F-statistic	8.318397
S.E. of regression	0.006079	Prob(F-statistic)	0.000008
Sum squared resid	0.001922	Durbin-Watson stat	2.007640

Residual Diagnostics of ECM Parsimonious Specification

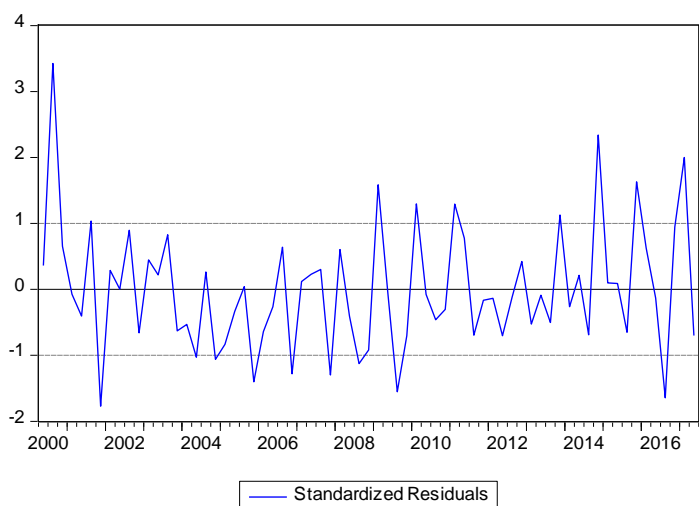| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.02	0.32	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.01	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.12	0.94	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.83	0.58	Accept null at the 5% level of significance.

g. Exports of Goods Deflator

Dependent Variable: DLOG(XP_GDS)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample (adjusted): 2000Q2 2017Q2
Included observations: 69 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.018876	0.024403	-0.773507	0.4422
DLOG(MP_GDS)	0.572324	0.100912	5.671514	0.0000
DSUMMER	-0.252517	0.016996	-14.85782	0.0000
DLOG(WP)	1.105764	0.605580	1.825960	0.0727
Error Correction Term	-0.673903	0.066063	-10.20085	0.0000
LOG(MP_GDS(-1))	-0.396810	0.198805	-1.995980	0.0503
LOG(WP(-1))	-0.471244	0.130431	-3.612985	0.0006

R-squared	0.917854	Log likelihood	111.3207
Adjusted R-squared	0.909904	F-statistic	115.4584
S.E. of regression	0.050854	Prob(F-statistic)	0.000000
Sum squared resid	0.160340	Durbin-Watson stat	2.098607

— Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

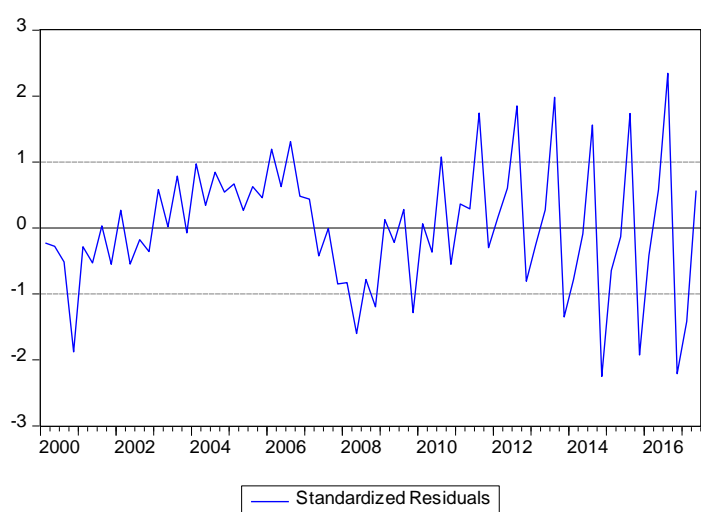| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.29	0.60	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.10	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	14.66	0.00	Reject null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.35	0.24	Accept null at the 5% level of significance.

59

h. Exports of Services Deflator

Dependent Variable: LOG(XP_SERV)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.191127	0.588252	-2.024858	0.0470
LOG(MP_SERV)	0.664877	0.056748	11.71637	0.0000
DAUTUMN	-0.012649	0.005449	-2.321368	0.0234
LOG(WGDP)	0.149481	0.077051	1.940031	0.0567
LOG(WP)	0.234923	0.072597	3.235994	0.0019

R-squared	0.983208	Log likelihood		181.4117
Adjusted R-squared	0.982175	F-statistic		951.4997
S.E. of regression	0.018808	Prob(F-statistic)		0.000000
Sum squared resid	0.022993	Durbin-Watson stat		1.968493

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

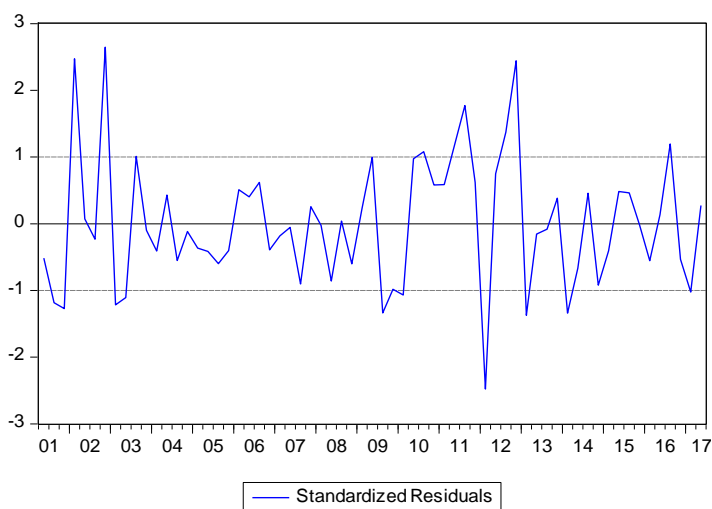| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.01	0.91	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.97	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.06	0.97	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	4.30	0.00	Reject null at the 5% level of significance.

i. Imports of Goods Deflator

Dependent Variable: DLOG(MP_GDS)
Method: Least Squares
Sample (adjusted): 2001Q2 2017Q2
Included observations: 65 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.206131	0.055338	-3.724927	0.0004
DLOG(MP_GDS(-4))	0.593966	0.076005	7.814859	0.0000
Error Correction Term	-0.616669	0.101957	-6.048307	0.0000
LOG(WOILP(-1))	-0.077033	0.017144	-4.493185	0.0000

R-squared	0.728513	Log likelihood		112.1144
Adjusted R-squared	0.715161	F-statistic		54.56281
S.E. of regression	0.044511	Prob(F-statistic)		0.000000
Sum squared resid	0.120855	Durbin-Watson stat		2.019121

— Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

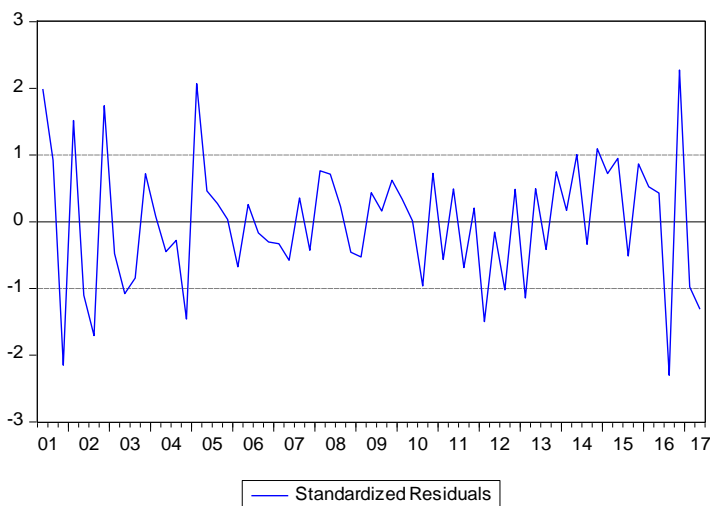| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.02	0.89	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.02	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	3.69	0.16	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.37	0.24	Accept null at the 5% level of significance.

j. Imports of Services Deflator

Dependent Variable: DLOG(MP_SERV)
Method: Least Squares
Sample (adjusted): 2001Q2 2017Q2
Included observations: 65 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.002118	0.008441	0.250857	0.8028
DLOG(WP)	0.362047	0.071513	5.062688	0.0000
DAUTUMN	0.042771	0.001543	27.71035	0.0000
Error Correction Term	-0.063435	0.021648	-2.930255	0.0048
LOG(WP(-1))	-2.510481	0.247253	-10.15349	0.0000
LOG(WOILP(-1))	0.161764	0.039729	4.071711	0.0001

R-squared	0.943820	Log likelihood	255.4334
Adjusted R-squared	0.939059	F-statistic	198.2382
S.E. of regression	0.004990	Prob(F-statistic)	0.000000
Sum squared resid	0.001469	Durbin-Watson stat	2.493981

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.81	0.13	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.49	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.00	0.99	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.90	0.08	Accept null at the 5% level of significance.

6. Government Block

6.1. Government Revenue

a. Taxes on Products

Dependent Variable: DLOG(TX_PROD)
Method: Least Squares
Sample: 2002Q1 2017Q2
Included observations: 62

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-5.532934	1.181096	-4.684575	0.0000
DLOG(SCV)	0.895288	0.357189	2.506481	0.0152
D11Q1	-0.143297	0.074071	-1.934594	0.0583
DSPRING	-0.090627	0.023025	-3.936058	0.0002
DAUTUMN	-0.122322	0.030092	-4.064930	0.0002
Error Correction Term	-0.636919	0.120695	-5.277093	0.0000
LOG(SCV(-1))	-1.529707	0.084554	-18.09137	0.0000
D10Q2	0.293672	0.125106	2.347377	0.0226

R-squared	0.777115	Log likelihood	81.31821
Adjusted R-squared	0.748223	F-statistic	26.89680
S.E. of regression	0.069847	Prob(F-statistic)	0.000000
Sum squared resid	0.263445	Durbin-Watson stat	1.945801
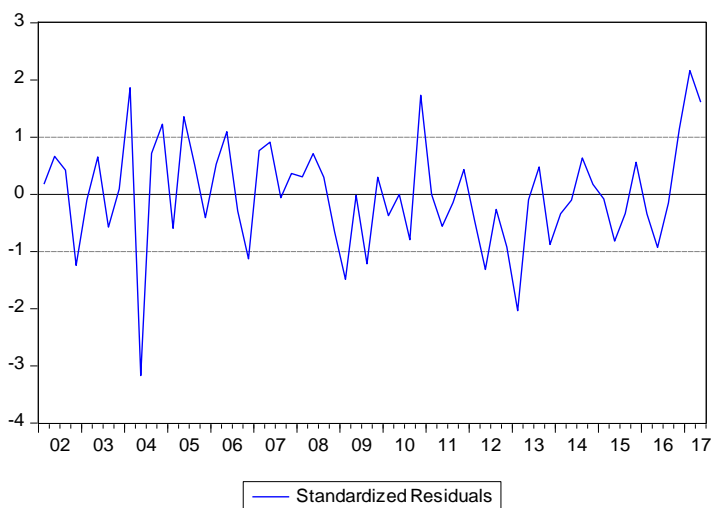
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

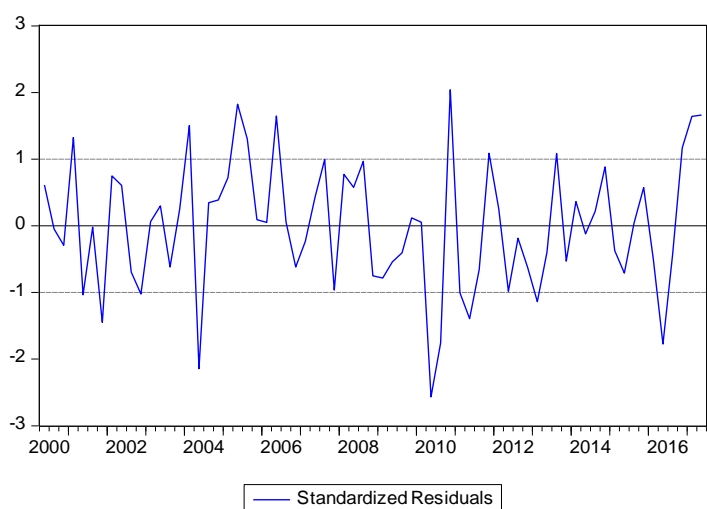| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.00	0.97	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.95	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	5.12	0.08	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.21	0.31	Accept null at the 5% level of significance.

b. Value Added Tax

Dependent Variable: DLOG(TX_VAT)
Method: Least Squares
Sample: 2000Q2 2017Q2
Included observations: 69

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-9.463237	0.851246	-11.11693	0.0000
DLOG(XV_TOUR(-1))	0.107872	0.019032	5.667999	0.0000
LOG(SCV(-1))	-1.834354	0.088741	-20.67088	0.0000
R-squared	0.686308	Log likelihood		63.83265
Adjusted R-squared	0.676802	F-statistic		72.19878
S.E. of regression	0.098095	Prob(F-statistic)		0.000000
Sum squared resid	0.635088	Durbin-Watson stat		2.255237

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

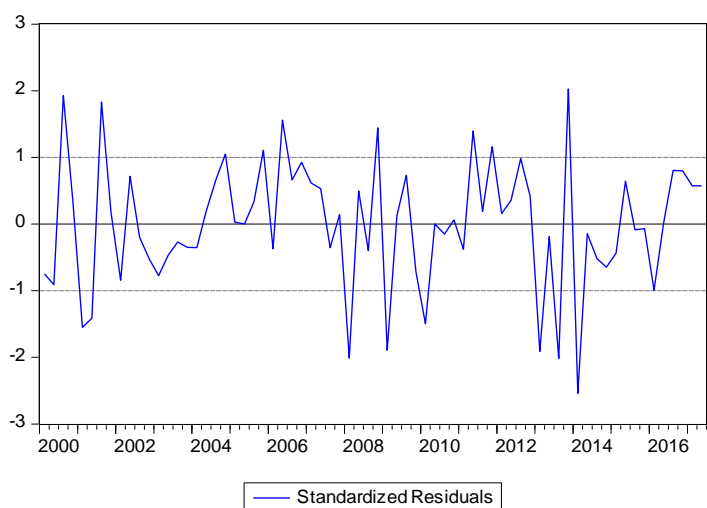| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.49	0.23	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.25	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.47	0.79	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.30	0.27	Accept null at the 5% level of significance.

c. Capital Taxes

Dependent Variable: DLOG(TX_CAP)
Method: Least Squares
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-4.695099	1.250905	-3.753362	0.0004
DLOG(AVG_PROP(-1))	0.323805	0.181266	1.786354	0.0788
D10Q2	0.815046	0.205562	3.964958	0.0002
D05Q2	0.880546	0.206357	4.267101	0.0001
Error Correction Term	-0.533073	0.085739	-6.217362	0.0000
LOG(AVG_PROP(-2))	-1.461427	0.159186	-9.180598	0.0000

R-squared	0.533386	Log likelihood	15.18641
Adjusted R-squared	0.496932	F-statistic	14.63167
S.E. of regression	0.203705	Prob(F-statistic)	0.000000
Sum squared resid	2.655733	Durbin-Watson stat	2.259318

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	2.42	0.12	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.26	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.35	0.51	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.22	0.95	Accept null at the 5% level of significance.

66

d. Current Taxes on Income and Wealth – Individual

Dependent Variable: LOG(TX_INC_IND)
Method: Least Squares
Date: 02/21/18   Time: 15:20
Sample: 2000Q1 2017Q2
Included observations: 70
LOG(TX_INC_IND)=C(1)+C(2)*LOG(IFE)+C(3)*DWINTER+C(4)
      *LOG(TX_INC_IND(-4))

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-4.091162	0.980265	-4.173526	0.0001
C(2)	0.793859	0.147020	5.399673	0.0000
C(3)	0.140602	0.042180	3.333405	0.0014
C(4)	0.427212	0.106074	4.027507	0.0001

R-squared	0.904746	Log likelihood	49.59603
Adjusted R-squared	0.900417	F-statistic	208.9626
S.E. of regression	0.122698	Prob(F-statistic)	0.000000
Sum squared resid	0.993609	Durbin-Watson stat	2.518341
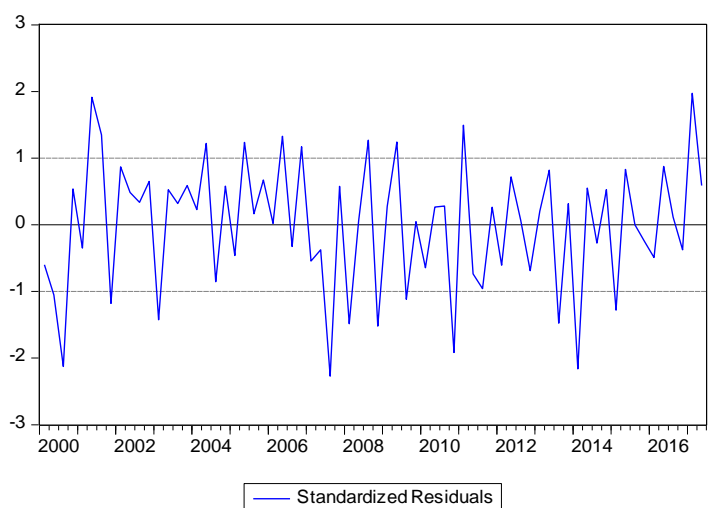
Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.52	0.20	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.51	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.95	0.38	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.48	0.70	Accept null at the 5% level of significance.

67

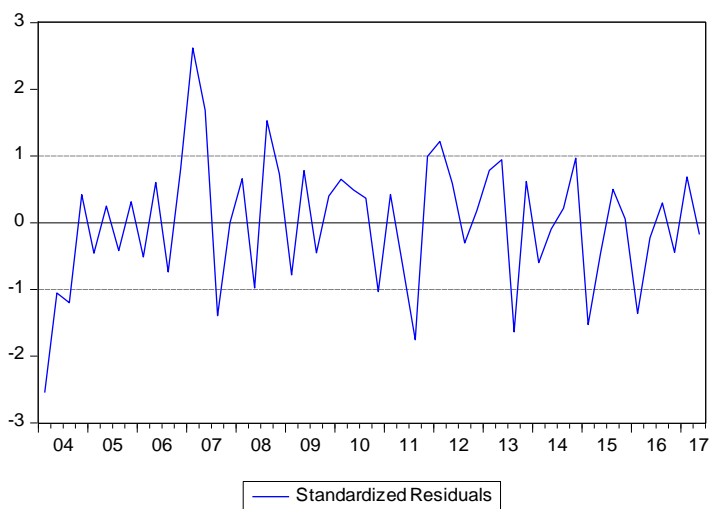### e. Current Taxes on Income and Wealth – Corporate

Dependent Variable: DLOG(TX_INC_CORP)
Method: Least Squares
Sample: 2004Q1 2017Q2
Included observations: 54

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-3.745281	1.228255	-3.049271	0.0037
D07Q4	0.345519	0.141693	2.438497	0.0184
DLOG(TX_INC_CORP(-1))	-0.727397	0.072150	-10.08176	0.0000
Error Correction Term	-0.285343	0.094616	-3.015807	0.0041
LOG(GOS(-1))	-1.823115	0.297273	-6.132789	0.0000
R-squared	0.823672	Log likelihood		33.04152
Adjusted R-squared	0.809278	F-statistic		57.22277
S.E. of regression	0.137761	Prob(F-statistic)		0.000000
Sum squared resid	0.929923	Durbin-Watson stat		1.849881

Residual Diagnostics of ECM Parsimonious Specification

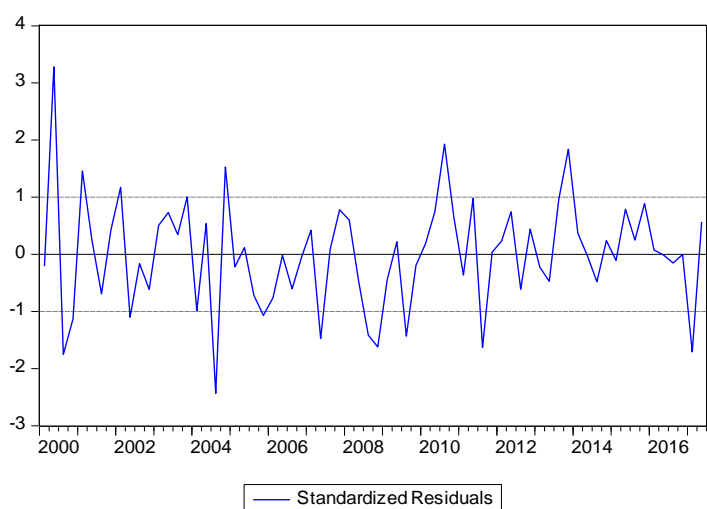| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.00	0.94	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.85	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.40	0.82	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.44	0.23	Accept null at the 5% level of significance.

f. Property Income Receivable

Dependent Variable: DLOG(PROP_INC)
Method: Least Squares
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.336819	1.229298	3.527884	0.0008
DAUTUMN	0.371060	0.125230	2.963020	0.0043
DLOG(PROP_INC(-4))	0.582479	0.100991	5.767658	0.0000
Error Correction Term	-1.249082	0.113585	-10.99690	0.0000
LOG(PROP_INC(-5))	-0.641103	0.103893	-6.170822	0.0000

R-squared	0.843671	Log likelihood		-18.72801
Adjusted R-squared	0.834050	F-statistic		87.69723
S.E. of regression	0.328131	Prob(F-statistic)		0.000000
Sum squared resid	6.998559	Durbin-Watson stat		2.212749

— Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

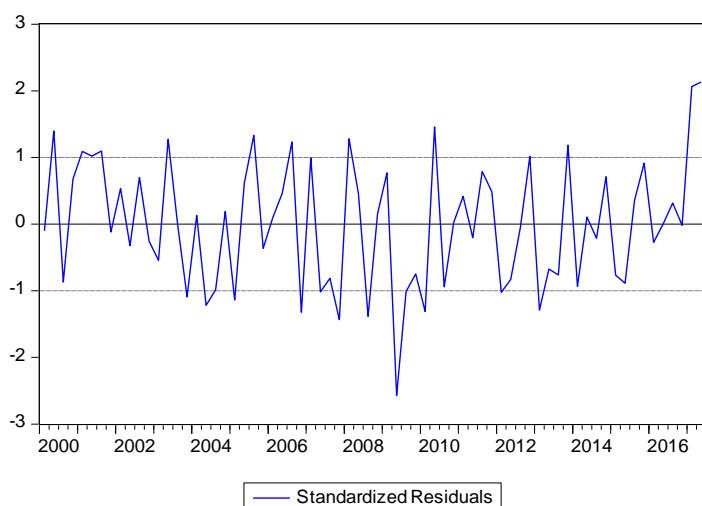| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.23	0.31	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.21	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	3.91	0.14	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.85	0.49	Accept null at the 5% level of significance.

g. Social Security Contributions Receivable

Dependent Variable: DLOG(SS_CONT)
Method: Least Squares
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.108909	0.280227	-0.388646	0.6988
DLOG(IFE(-4))	1.314457	0.434259	3.026897	0.0036
DWINTER	0.144364	0.015234	9.476734	0.0000
DAUTUMN	0.048248	0.020221	2.385972	0.0201
DLOG(SS_CONT(-1))	-0.166668	0.106190	-1.569520	0.1215
Error Correction Term	-0.804594	0.162726	-4.944475	0.0000
LOG(IFE(-5))	-0.873048	0.026152	-33.38401	0.0000

R-squared	0.840480	Log likelihood		122.7295
Adjusted R-squared	0.825288	F-statistic		55.32260
S.E. of regression	0.044178	Prob(F-statistic)		0.000000
Sum squared resid	0.122955	Durbin-Watson stat		1.988783

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

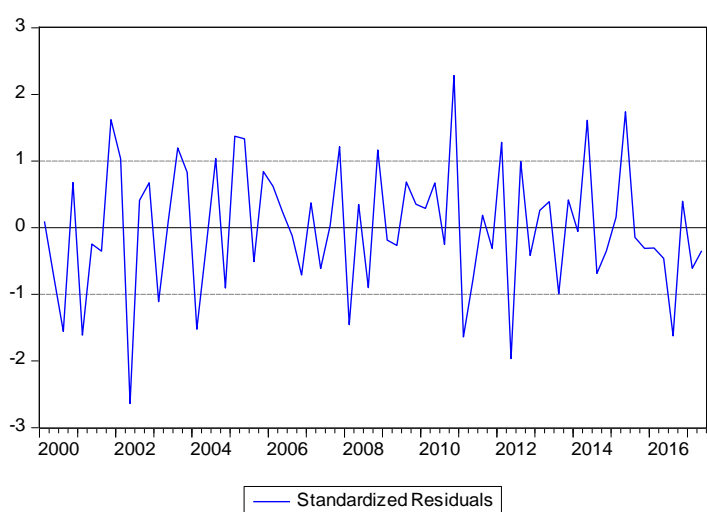| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.40	0.53	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.99	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	6.65	0.72	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.31	0.26	Accept null at the 5% level of significance.

h. Other Taxes on Production

Dependent Variable: DLOG(TX_OTXPROD)
Method: Least Squares
Sample: 2000Q1 2017Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-6.236331	3.350041	-1.861568	0.0672
DLOG(TX_OTXPROD(-4))	0.389052	0.124261	3.130921	0.0026
DLOG(MV_CONS(-1))	-1.343786	0.756208	-1.777006	0.0802
LOG(MV_CONS(-1))	-1.245407	0.542862	-2.294150	0.0250
LOG(TX_OTXPROD(-5))	-0.275600	0.253660	-1.086493	0.2813
R-squared	0.540791	Log likelihood		-8.592495
Adjusted R-squared	0.512531	F-statistic		19.13690
S.E. of regression	0.283900	Prob(F-statistic)		0.000000
Sum squared resid	5.238934	Durbin-Watson stat		2.573323

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.77	0.13	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.57	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.41	0.81	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.97	0.44	Accept null at the 5% level of significance.

71

6.2. Government Expenditure
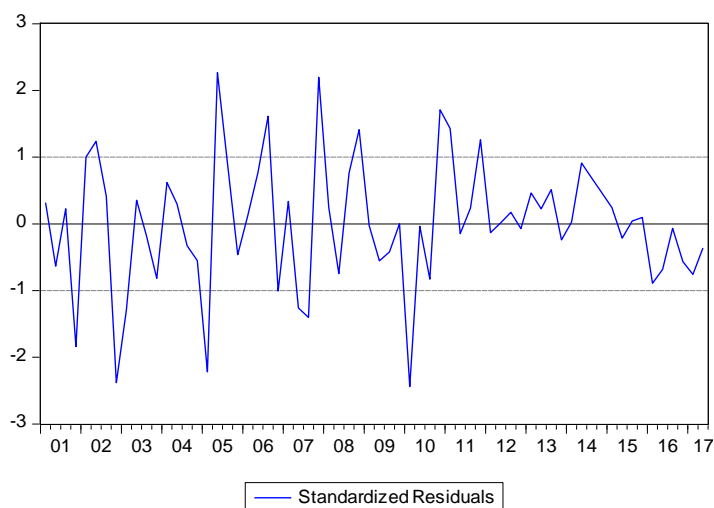
a. Property Income Expenditure

Dependent Variable: DLOG(PROPINCEXP_PS)
Method: Least Squares
Sample: 2001Q1 2017Q2
Included observations: 66

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.681328	1.115091	1.507795	0.1368
DLOG(PROPINCEXP_PS(-1))	-0.487820	0.064185	-7.600218	0.0000
D09Q4	-0.382528	0.157689	-2.425847	0.0182
LOG(YVAV_RCONS(-1))	-0.413680	0.156588	-2.641844	0.0105
LOG(PROPINCEXP_PS(-5))	-0.321929	0.145754	-2.208711	0.0310

R-squared	0.767966	Log likelihood		54.98096
Adjusted R-squared	0.752751	F-statistic		50.47315
S.E. of regression	0.109417	Prob(F-statistic)		0.000000
Sum squared resid	0.730291	Durbin-Watson stat		1.979969

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

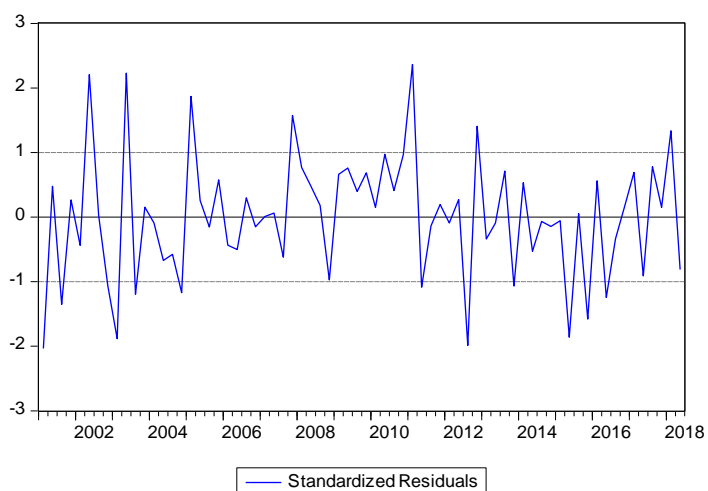| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.00	0.94	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	1.98	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	1.16	0.56	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	4.81	0.00	Reject null at the 5% level of significance.

b. Social Benefits Paid

Dependent Variable: LOG(SOCBEN_PS)
Method: Least Squares
Sample: 2001Q1 2018Q2
Included observations: 70

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	9.732049	0.220213	44.19373	0.0000
LOG(SU)	0.041086	0.020105	2.043611	0.0450
LOG(AW)	1.481175	0.042245	35.06155	0.0000
DWINTER	0.069775	0.013174	5.296541	0.0000
DSPRING	0.095653	0.012928	7.398758	0.0000

R-squared	0.972135	Log likelihood	121.0465
Adjusted R-squared	0.970420	F-statistic	566.9088
S.E. of regression	0.044551	Prob(F-statistic)	0.000000
Sum squared resid	0.129012	Durbin-Watson stat	2.417493

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

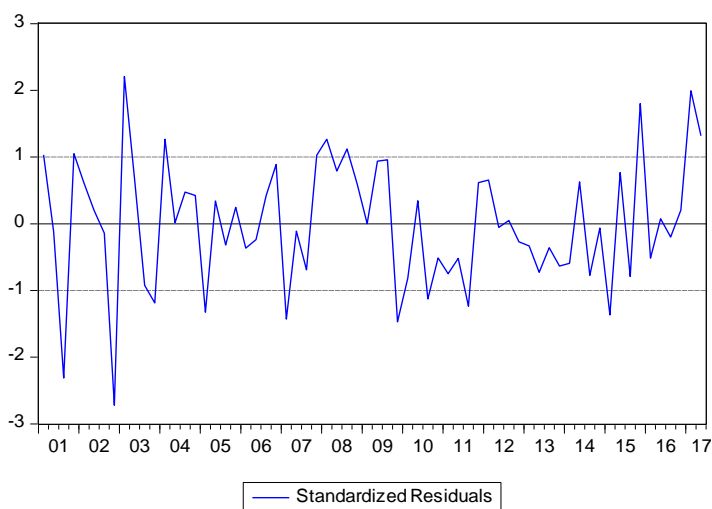| Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	1.32	0.27	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.41	-	Accept the null hypothesis of residuals not being strongly autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.23	0.89	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	0.59	0.67	Accept null at the 5% level of significance.

73

c. Intermediate Consumption

Dependent Variable: DLOG(INTCOMP_PS)
Method: Least Squares
Sample: 2001Q1 2017Q2
Included observations: 66

	Coefficient	Std. Error	t-Statistic	Prob.
Constant	2.398584	1.909571	1.256085	0.2140
D09Q1	-0.299316	0.133535	-2.241474	0.0287
Error Correction Term	-0.832329	0.097755	-8.514409	0.0000
LOG(AWG(-1))	-1.911553	0.202538	-9.437997	0.0000
LOG(HICP_PHAR(-2))	-1.157306	0.549017	-2.107961	0.0392
DWINTER	-0.255974	0.060307	-4.244516	0.0001

R-squared	0.721999	Log likelihood	45.30652
Adjusted R-squared	0.698832	F-statistic	31.16524
S.E. of regression	0.127742	Prob(F-statistic)	0.000000
Sum squared resid	0.979075	Durbin-Watson stat	2.096186

Standardized Residuals

Residual Diagnostics of ECM Parsimonious Specification

Diagnostic Test	Null Hypothesis	Test-Statistic	P-Value	Conclusion
Breusch Godfrey LM	H_0: Residuals are serially uncorrelated	0.58	0.45	Accept null at 5% level of significance.
Durbin-Watson	H_0: Residuals are not autocorrelated	2.09	-	Accept the null hypothesis of residuals not being autocorrelated.
Jarque-Bera	H_0: Residuals are normally distributed	0.62	0.73	Accept null at the 5% level of significance.
Breusch-Pagan-Godfrey	H_0: Homoskedastic residuals	1.75	0.13	Accept null at the 5% level of significance.

74

Appendix B: Exogenous Variables

Denotation	Historical Data Source	Forecast Method/Source	Time Series	Explanation
AWPadj	NSO	Forecast based on judgment of economic experts in the Ministry of Finance	1995 - 2016	Increase in average private sector wages in excess of COLA increase
AWGadj	NSO	Forecast based on judgment of economic experts in the Ministry of Finance	1995 - 2016	Increase in average public sector wages in excess of COLA increase
HICPW_ind	Eurostat	Forecast assumes the same weight of the last quarter	1995 - 2016	Weight of non-energy industrial goods in HICP
HICPW_en	Eurostat	Forecast assumes the same weight of the last quarter	1995 - 2016	Weight of energy in HICP
HICPW_unprocfd	Eurostat	Forecast assumes the same weight of the last quarter	1995 - 2016	Weight of unprocessed food in HICP
HICPW_procfd	Eurostat	Forecast assumes the same weight of the last quarter	1995 - 2016	Weight of processed food in HICP
HICPW_serv	Eurostat	Forecast assumes the same weight of the last quarter	1995 - 2016	Weight of services in HICP
HICP_phar	Eurostat	Forecast assumes the same average growth rate of the previous year	1995 - 2016	A measure of price growth for pharmaceutical goods
HICP_trans	Eurostat	Forecast assumes the same average growth rate of the previous year	1995 - 2016	A measure of price growth for transport goods
RPW_traded	NSO	Forecast assumes the same weight of the last quarter	1995 - 2016	Retail Price Index of Traded Goods weighted by Food, Beverages and Tobacco, Clothing and Footwear, Durable Household Goods, Personal Care and Health, Education, Entertainment and Recreation, Other Goods and Services
RPW_nontraded	NSO	Forecast assumes the same weight of the last quarter	1995 - 2016	Retail Price Index of Non-Traded Goods, weighted by Housing, Fuel, Light and Power, Transport and Communication
XP_st	United States Department of Labour	Forecast based on trend	1995-2016	Export prices of semiconductors, reflecting export prices quoted by Malta's manufacturing sector
MP_st	United States Department of Labour	Forecast based on trend	1995-2016	Import prices of semiconductors, reflecting import prices incurred by Malta's manufacturing sector

Denotation	Historical Data Source	Forecast Method/Source	Time Series	Explanation
XPW_gds	NSO	Forecast assumes the weight of the last quarter	2000-2016	Weight of exports of goods to overall exports
XPW_serv	NSO	Forecast assumes the same weight of the last quarter	2000-2016	Weight of exports of services to overall exports
MPW_gds	NSO	Forecast assumes the same weight of the last quarter	2000-2016	Weight of imports of goods to overall imports
MPW_serv	NSO	Forecast assumes the same weight of the last quarter	2000-2016	Weight of imports of services to overall imports
TIME	-	Forecast based on consecutive number series	1995 - 2016	Time trend
SS	NSO	Contribution to GDP growth over the forecast horizon is zero	1995 - 2016	Contribution from the inventories component over the forecast horizon is assumed zero
SSP	NSO	Forecast assumes the same level as the previous year	1995 - 2016	Over the forecast horizon, the deflator for the inventories component is assumed the same as the previous year.
Ye0_ps	NSO	Input is given by the Budget Office	1995 - 2016	Budget Office conducts Ministerial discussions
WPOP	Eurostat	Eurostat forecast updated every three years	1995 - 2016	Population on 1st January by age and sex
WGDP	Consensus Forecasts, NSO	Weighted based on the most recent export trade shares	1995 - 2016	Measures the real growth in Malta's main trading partners (Germany, France, UK, Italy and USA) weighted by historical export trade shares.
WGDPV	Consensus Forecasts, NSO	Weighted based on the most recent export trade shares	1995 - 2016	Measures the nominal growth in Malta's main trading partners (Germany, France, UK, Italy and USA) weighted by historical export trade shares.
WGDPT	Consensus Forecasts, NSO	Weighted based on the most recent tourism trade shares	1995 - 2016	Measures the real growth in Malta's main trading partners (Germany, France, UK, Italy and USA) weighted by inbound tourists.
WGDPTV	Consensus Forecasts, NSO	Weighted based on the most recent tourism trade shares	1995 - 2016	Measures the nominal growth in Malta's main trading partners (Germany, France, UK, Italy and USA) weighted by inbound tourists.
WP	Consensus Forecasts, NSO	Weighted based on the most recent trade shares	1995 - 2016	A trade-weighted measure of producer price growth in Malta's main trading partners (Germany, France, UK, Italy and USA)

Denotation	Historical Data Source	Forecast Method/Source	Time Series	Explanation
EFEX	European Central Bank	Regression based forecast	1995 - 2016	A measure of the nominal value of the Euro weighted against a basket of foreign currencies
WOILP	United States Energy Information Administration	Consensus Forecasts	1995 - 2016	Europe Brent Spot Price (Dollars per Barrel)
EFTR	NSO	Forecast assumes the same growth of the last quarter	1995 - 2016	The summation of employees National Insurance and Income Tax expressed as a ratio of the difference between Compensation of Employees and Employers Contribution Rate
ECR	NSO	Forecast assumes the same growth of the last quarter	1995 - 2016	Compensation of Employees divided by the Total Employer Contributions
KV_gov	NSO	Projected investment provided by Budget Office	1995 - 2016	Investment made by the Government
COLA	NSO	Forecast is based on retail price inflation	1995 - 2016	The annual increment to salaries to reflect changes in the cost of living
INT	European Central Bank	Forecast is based on information available at the time of forecast	1995 - 2016	Reflects the cost of borrowing for fixed rate tenders with a maturity of less than one-year
WCONSP	Consensus Forecasts, NSO	Weighted based on the most recent trade shares	1995 - 2016	A measure of general inflation, weighted by Malta's key trading partners
MSE	Malta Stock Exchange	Regression based forecast	1995 - 2016	Malta Stock Exchange equity total return index
MV_og	NSO	Forecast based on judgment of economic experts in the Ministry of Finance	2004-2016	Imports of Other Goods at current market prices
TX_ocr	NSO	Forecast based on input from the fiscal model in the Ministry of Finance	2000-2016	The Fiscal Model in the Ministry for Finance provides the other current revenue component
otherexp_ps	NSO	Forecast based on input by the Budget Office	2000-2017	Budget Office provides information based on set expenditure targets
LRINT_MT	Eurostat	Forecast assumes the same growth of the last quarter	1995 - 2016	The return on investment earned on long term Maltese bonds, a measure of Malta's attractiveness for investment
LRINT_DE	Eurostat	Forecast assumes the same growth of the last quarter	1995 - 2016	The return on investment earned on long term German bonds, a measure of Germany's attractiveness for investment

Denotation	Historical Data Source	Forecast Method/Source	Time Series	Explanation
VIXX	Cboe Global Markets, Inc.	Forecast assumes the same growth of the last quarter	1995 - 2016	A measure of the stock market's expectation of volatility implied by S&P 500 index options
SRI	Eurostat	Forecast assumes the same growth of the last quarter	1995 - 2016	A measure of risk, computed using the difference between the yield on Maltese bonds and German bonds
STG	European Central Bank	Consensus Forecasts	1995 - 2016	British Pound denominated in Euro
DEX	European Central Bank	Consensus Forecasts	1995 - 2016	The relative value of the Euro against the United States Dollar
CHF	European Central Bank	Consensus Forecasts	2000-2016	Swiss Franc denominated in Euro
DKK	European Central Bank	Consensus Forecasts	2000-2016	Danish Krone denominated in Euro
NOK	European Central Bank	Consensus Forecasts	2000-2016	Norwegian Krone denominated in Euro
SEK	European Central Bank	Consensus Forecasts	2000-2016	Swedish Krone denominated in Euro
REER	European Central Bank	Regression based forecast	1995 - 2016	A measure of the real (deflated) value of the euro against a weighted average of prominent foreign currencies

Appendix C: List of Identities

Trade

i)   XV_tour = TNUM * TAVSPEND / 1000

ii)   SXV = $\sum XV$

iii) XV_netoffuel = SXV - (XV_fuel)

iv)   SMV = $\sum MV$

v)   MV_netoffuel = SMV - (MV_fuel)

vi)   MV_serv = MV_fis + MV_obs + MV_rg + MV_os

vii) BP = SXV – SMV + NETINVINC

Value Added

i)   GDPFCV = $\sum YVAV$

Gross Operating Surplus

i)   GOS = GDPV - (TX_prod + TX_otxprod) + subs_ps - IFE

Labour Market

i)   SE = $\sum YE0$

ii)   Ye0_gamfisobs = Ye0_rg + Ye0_fis + Ye0_obs

iii) SLF = SU + SE   (used to create actual data)

iv)   SLF = SLFR * WPOP   (used for forecasting purposes)

v)   SLFR = SLF/WPOP

vi)   SURATE = 100 * SU / SLF

vii) WPOP_lfs = POP1564

viii) SLFR_lfs = SLF_lfs / WPOP_lfs

ix)   SLF_lfs = SLFR_lfs * WPOP_lfs

x)   SU_lfs = SLF_lfs - SE_lfs

xi)   SURATE_lfs = 100 * SU_lfs / SLF_lfs

xii) SU = SLF - SE

Income from Employment

i)   AWP = (IFE - CompofEmp_ps) / (SE - YE0_ps)   (used to create actual data)

ii)   AWP = AWP(-4) + (13 * COLA / 1000) + AWPadj   (used for forecasting purposes)

iii) AW = ((YE0_PS / SE) * AWG) + ((SE - YE0_PS) / SE) * AWP

iv)   AWGadj = AWG - AWG(-4)-(13*COLA/1000) (used to create actual data; forecasts are exogenous)

v)   AWPadj = AWP - AWP(-4)-(13*COLA/1000) (used to create actual data; forecasts are exogenous)

vi)   CompofEmp_ps = YE0_ps * AWG

vii) AWG = CompofEmp_ps / YE0_ps   (used to create actual data)

viii) AWG = AWG(-4) + (13 * COLA / 1000) + AWGadj   (used for forecasting purposes)

ix) IFE = TIE_private + CompofEmp_ps

x) TIE_private = AWP * (SE – YE0_ps)

xi) WAGE = IFE * (1 - ECR)

Prices

i) RPI = (RPW_traded * RP_traded) + (RPW_nontraded * RP_nontraded)

ii) HICP = (HICP_ind*HICPW_ind) + (HICP_en*HICPW_en) + (HICP_unprocfd*HICPW_unprocfd) + HICP_procfd*HICPW_procfd +HICP_serv*HICPW_serv

iii) SXP = (XP_gds*XPW_gds) + (XP_serv*XPW_serv)

iv) SMP = (MP_gds*MPW_gds) + (MP_serv*MPW_serv)

Public Finances

i) BUDG = (TX_Prod + TX_ocr + TX_VAT + TX_Cap + TX_INC_Ind + TX_INC_Corp + Prop_Inc + SS_Cont + TX_otxprod + TX_oggr) - (CompofEmp_ps + Intcomp_ps + Subs_ps + PropIncExp_ps + socben_ps + currtrans_ps + captrans_ps + kv_gov + otherexp_ps)

ii) GDEBT = GDEBT(-1) - BUDG + GDEBTADJ

iii) TX_inc = TX_Inc_ind + TX_Inc_corp

Expenditure

i) SG = SGV / SGP

ii) SK = (KV_nongov + KV_gov) / SKP

iii) SKV = SK * SKP

iv) SX = SXV / SXP

v) SM = SMV / SMP

vi) GDP = SC + SG + SK + SS + SX - SM

vii) SCV = SC * SCP

viii) SSV = SS * SSP

ix) GDPV = SCV + SGV + SKV + SSV + SXV - SMV

x) FCAV = GDPV - GDPFCV

Interest Rate

i) RINT = 100*(((1+INT/100)/(SCP/SCP(-4)))-1)

Appendix D: List of Variables

MV_CONS	Imports of Consumption Goods
MV_CAP	Imports of Capital Goods
MV_INT	Imports of Intermediate Goods
MV_FUEL	Imports of Fuels
MV_OG	Imports of Other Goods
MV_FIS	Imports of Financial Services
MV_OBS	Imports of Other Business Services
MV_RG	Imports of Remote Gaming
MV_OS	Imports of Other Services
MV_NETOFFUEL	Imports Net of Fuel
XV_NETOFFUEL	Exports Net of Fuel
XV_EM	Exports of Electrical and Machinery Equipment
XV_FUEL	Exports of Fuels
XV_CHEMPHAR	Exports of Chemicals and Pharmaceuticals
XV_OG	Exports of Other Goods
XV_FIS	Exports of Financial Services
XV_OBS	Exports of Other Business Services
XV_RG	Exports of Remote Gaming
XV_TOUR	Exports of Tourists
TNUM	Inbound Tourist Numbers
TAVSPEND	Tourists Average Spending
XV_OS	Exports of Other Services
BP	Balance of Payments
YVAV_EM	Value Added of the Electrical and Machinery Sector
YVAV_CHEMPHAR	Value Added of the Pharmaceutical and Chemicals Sector
YVAV_OG	Value Added of the Other Goods Sector
YVAV_OD	Value Added of the Domestic Sector
YVAV_RCONS	Value Added of the Real Estate and Construction Activities Sector
YVAV_WRT	Value Added of the Wholesale and Retail Trade Sector

YVAV_RG	Value Added of the Remote Gaming Sector
YVAV_OBS	Value Added of the Other Business Services Sector
YVAV_PS	Value Added of the Public Sector
YVAV_TOUR	Value Added of the Tourism Sector
YVAV_FIS	Value Added of the Financial and Insurance Services Sector
YVAV_OS	Value Added of the Other Services Sector
YE0_RCONS	Employment in the Real Estate and Construction Activities Sector
YE0_PS	Employment in the Public Sector
YE0_WRT	Employment in the Wholesale and Retail Trade Sector
YE0_OD	Employment in Other Domestic Sectors
YE0_MANUF	Employment in the Manufacturing Sector
YE0_TOUR	Employment in the Tourism Sector
YE0_OBS	Employment in the Other Business Services Sector
YE0_RG	Employment in the Remote Gaming Sector
YE0_FIS	Employment in the Financial and Insurance Activities Sector
YE0_OS	Employment in the Other Services Sector
HICP_IND	Prices of Industrial Goods
HICP_PROCFD	Prices of Processed Food
HICP_EN	Energy Prices
HICP_UNPROCFD	Prices of Unprocessed Food
HICP_SERV	Services of Prices
RP_TRADED	Retail Prices of the Tradable Sector
RP_NONTRADED	Retail Prices of the Non-Tradable Sector
SC	Real Private Consumption Expenditure
SCP	Private Consumption Deflator
SGV	Public Consumption Expenditure
SGP	Public Consumption Deflator
KV_NONGOV	Private Gross Fixed Capital Formation
SKP	Gross Fixed Capital Formation Deflator

XP_GDS	Exports of Goods Deflator
XP_SERV	Exports of Services Deflator
MP_GDS	Imports of Goods Deflator
MP_SERV	Imports of Services Deflator
TX_PROD	Taxes on Production
TX_VAT	Value Added Tax
TX_CAP	Capital Taxes
TX_INC_IND	Current Taxes on Income and Wealth – Individual
TX_INC_CORP	Current Taxes on Income and Wealth – Corporate
PROP_INC	Property Income Receivable
SS_CONT	Social Security Contributions Receivable
TX_OTXPROD	Other Taxes on Production
PROPINCEXP_PS	Property Income Expenditure
SOCBEN_PS	Social Benefits Paid
INTCOMP_PS	Intermediate Consumption
AVG_PROP	Average Property Prices
AW	Average Wages
AWG	Public Average Wages
AWG_ADJ	Adjustment – Public Average Wages
AWP	Private Average Wages
AWP_ADJ	Adjustment – Private Average Wages
BASEWAGELM	Base Wage in Maltese Lira
BUDG	Government Budget Balance
CAPTRANS_PS	Public Capital Transfers
COLA	Cost of Living Adjustment
COMPOFEMP_PS	Public Compensation of Employees
CURRTRANS_PS	Public Current Transfers
D_SUP	Dummy Variable – 1995 to 2007
D00Q1	Dummy Variable – 2000 Quarter 1

D00Q1ON	Dummy Variable – 2000 Quarter 1 onwards
D00Q1Q3	Dummy Variable – 2013 Quarter 1 to Quarter 3
D00Q4ON	Dummy Variable – 2000 Quarter 4 onwards
D02Q2	Dummy Variable – 2002 Quarter 2
D03Q1	Dummy Variable – 2003 Quarter 1
D0408RG	Dummy Variable – 2004 to 2008
D04on	Dummy Variable – 2004 onwards
D05	Dummy Variable – 2005
D0507	Dummy Variable – 2005 to 2007
D05Q1	Dummy Variable – 2005 Quarter 1
D05Q2	Dummy Variable – 2005 Quarter 2
D06EURO	Dummy Variable – 2006 onwards
D06Q1	Dummy Variable – 2006 Quarter 1
D07Q1	Dummy Variable – 2007 Quarter 1
D07Q4	Dummy Variable – 2007 Quarter 4
D08CHPH	Dummy Variable – 2008
D08Q1	Dummy Variable – 2008 Quarter 1
D08Q3	Dummy Variable – 2008 Quarter 3
D08Q4FIS	Dummy Variable – 2008 Quarter 4
D09	Dummy Variable – 2009
D09Q1	Dummy Variable – 2009 Quarter 1
D09Q2	Dummy Variable – 2009 Quarter 2
D09Q4	Dummy Variable – 2009 Quarter 4
D10EM	Dummy Variable – 2010
D10Q2	Dummy Variable – 2010 Quarter 2
D11	Dummy Variable – 2011
D11Q1	Dummy Variable – 2011 Quarter 1
D11Q3	Dummy Variable – 2011 Quarter 3
D11Q4	Dummy Variable – 2011 Quarter 4

D12ON	Dummy Variable – 2012 onwards
D12Q1	Dummy Variable – 2012 Quarter 1
D12Q1Q2	Dummy Variable – 2015 Quarter 1 and Quarter 2
D12Q2	Dummy Variable – 2012 Quarter 2
D12Q3	Dummy Variable – 2012 Quarter 3
D12Q4	Dummy Variable – 2012 Quarter 4
D13ON	Dummy Variable – 2013 onwards
D13Q1	Dummy Variable – 2013 Quarter 1
D13Q2	Dummy Variable – 2013 Quarter 2
D13Q2ON	Dummy Variable – 2013 Quarter 2 onwards
D14ON	Dummy Variable – 2014 onwards
D15	Dummy Variable – 2015
D15Q1	Dummy Variable – 2015 Quarter 1
D15Q3	Dummy Variable – 2015 Quarter 3
D15Q3ON	Dummy Variable – 2015 Quarter 3 onwards
D16	Dummy Variable – 2016
D16Q1ON	Dummy Variable – 2016 Quarter 1 onwards
D16Q1Q2	Dummy Variable – 2016 Quarter 1 and Quarter 2
D16Q2	Dummy Variable – 2016 Quarter 2
D16Q3	Dummy Variable – 2016 Quarter 3
D16Q4	Dummy Variable – 2016 Quarter 4
D16Q4ON	Dummy Variable – 2016 Quarter 4 onwards
D17Q1	Dummy Variable – 2017 Quarter 1
D17Q2	Dummy Variable – 2017 Quarter 2
D2009ON	Dummy Variable – 2009 onwards
D2010ON	Dummy Variable – 2010 onwards
D2011ON	Dummy Variable – 2011 onwards
D911	Dummy Variable – 2009 to 2011
D97Q4ON	Dummy Variable – 1997 Quarter 4 onwards

D98Q1	Dummy Variable – 1998 Quarter 1
D98Q4	Dummy Variable – 1998 Quarter 4
D_Spring	Seasonal Dummy - Spring
D_Summer	Seasonal Dummy - Summer
D_Autumn	Seasonal Dummy - Autumn
D_Winter	Seasonal Dummy - Winter
GDEBT	Government Debt
GDEBTADJ	Adjustment for Government Debt
GDP	Real Gross Domestic Product (chain-linked volumes)
GDPFCV	Nominal Gross Domestic Product at Factor Cost
GDPV	Nominal Gross Domestic Product
GOS	Gross Operating Surplus
GR_EXT	Public Extraordinary Revenue
HICP	Harmonised Index of Consumer Prices
HICP_PHAR	Harmonised Index of Consumer Prices - Pharmaceuticals
HICP_TRANS	Harmonised Index of Consumer Prices - Transport
IFE	Income from Employment
INTCOMP_PS	Public Intermediate Consumption
INTPROPINC	Public Interest on Property Income
KV_GOV	Public Gross Fixed Capital Formation
KV_NONGOV	Private Gross Fixed Capital Formation
MP_GDS	Import Deflator - Goods
MP_SERV	Import Deflator - Services
NETINVINC	Net Investment Income
OTHEREXP_PS	Public Other Expenditure
POP014	Young-Age Population (0-14 years)
POP1564	Working Age Population
POP6500	Old-Age Population (65+ years)
PROPINCEXP_PS	Public Property Income Expenditure

RINT	Real Interest Rate
RP_NONTRADED	Retail Prices - Nontraded
RPI	Retail Price Index
SC	Real Private Consumption Expenditure
SCP	Private Consumption Expenditure Deflator
SCV	Nominal Private Consumption Expenditure
SE	Employed
SE_LFS	Employed (Labour Force Survey Definition)
SG	Real Government Consumption Expenditure
SGP	Public Consumption Deflator
SK	Real Gross Fixed Capital Formation
SKP	Gross Fixed Capital Formation Deflator
SKV	Nominal Gross Fixed Capital Formation
SLF	Labour Force
SLF_LFS	Labour Force (Labour Force Survey)
SLFR	Labour Force Participation Rate
SLFR_LFS	Labour Force Participation Rate (Labour Force Survey)
SM	Real Imports of Goods and Services
SMP	Imports of Goods and Services Deflator
SMV	Nominal Imports of Goods and Services
SOCBEN_PS	Public Social Benefits
SSV	Nominal Inventories
SU_LFS	Unemployed – Labour Force Survey
SUBS_PS	Public Subsidies
SURATE	Unemployment Rate
SURATE_LFS	Harmonised Unemployment Rate (Labour Force Survey)
SX	Real Exports of Goods and Services
SXP	Exports of Goods and Services Deflator
SXV	Nominal Exports of Goods and Services

TIE_PRIVATE	Private Total Income
TIME	Time Trend Variable
TX_INC	Public Taxes on Income
TX_OGGR	Other General Government Revenue
TX_OTXPROD	Public Other Taxes on Production
WAGE	Compensation of Employees
WPOP_LFS	Working Age Population (Labour Force Survey)
XP_GDS	Exports Deflator - Goods
XP_SERV	Exports Deflator - Services