Washington State Gasoline Revenue Forecasting

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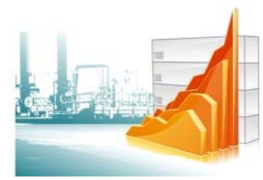


Web site with the Transportation Revenue Forecast Council forecasts

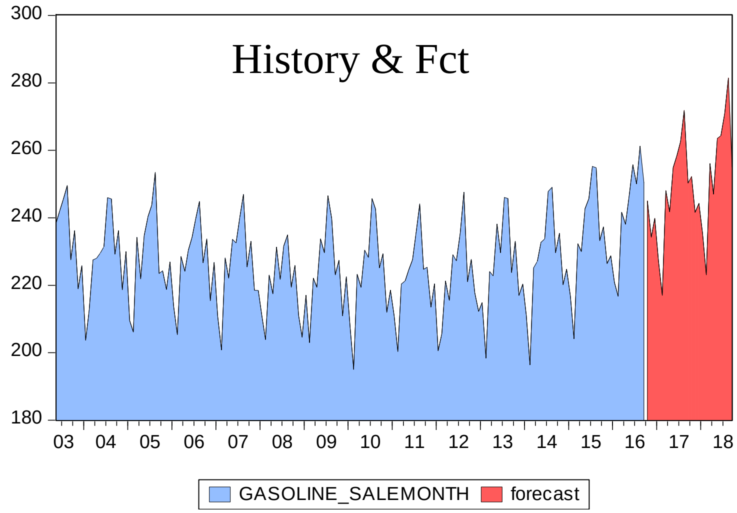
http://www.ofm.wa.gov/budget/info/transportationrevenue.asp

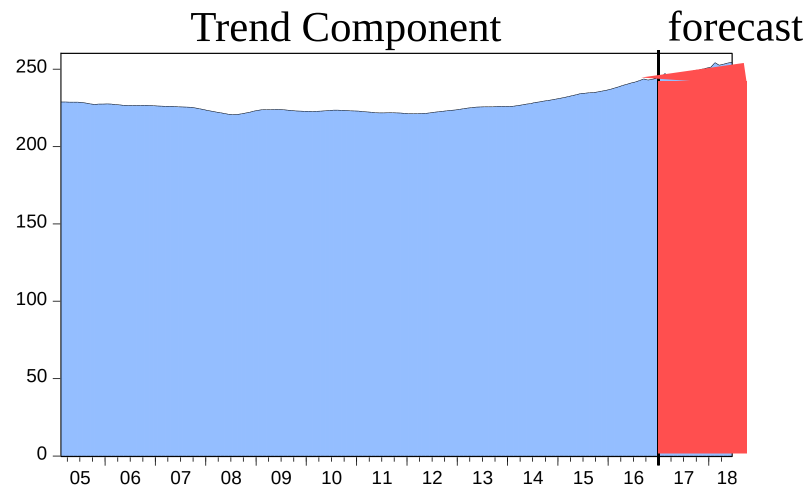
Washington State Department of Transportation

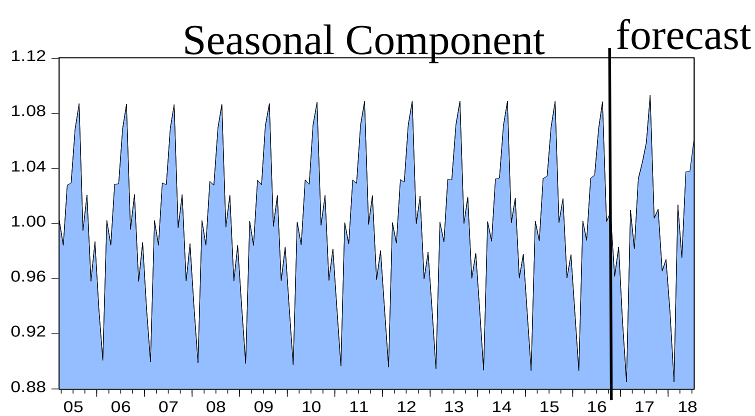
Current WA Gasoline Consumption Models

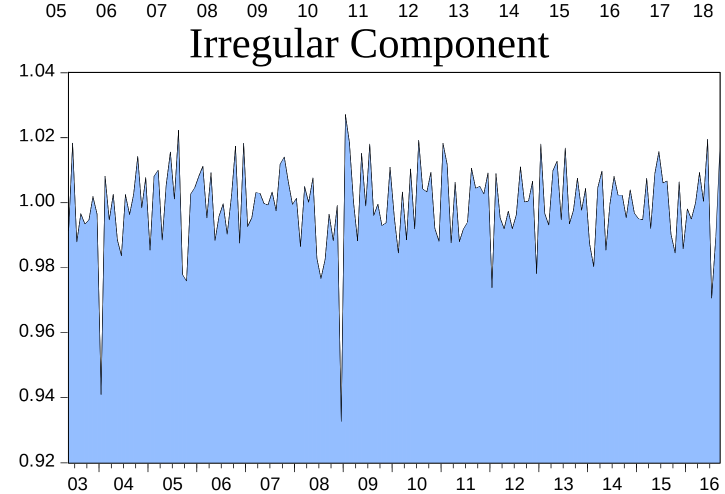
Short-term monthly model

- WA uses E-views for monthly gas consumption actuals in an ARIMA (Auto Regressive Moving Average) model
- **X-13ARIMA-SEATS** is a seasonal adjustment software produced, distributed, and maintained by the Census Bureau.





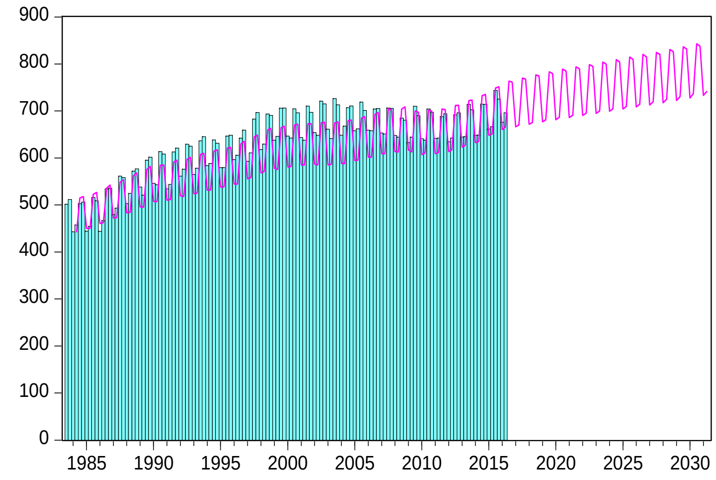




Current WA Gasoline Consumption Models

Long-term quarterly model

- Multiple economic indicators
  - Incorporates WA non-ag. employment, fuel efficiency, real gas prices, and population
  - Composite variable is created of real gas prices multiplied by fuel efficiency
- 1st Difference - Log-log form
- AR and MA terms
- Flat trend



Dependent Variable: DLOG(GASOLINE)
Method: ARMA Maximum Likelihood (BFGS)
Date: 01/23/17 Time: 17:47
Sample: 1983Q4 2016Q2
Included observations: 131
Convergence achieved after 20 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001144	0.000901	1.270325	0.2064
DLOG(EE_WA_1016)	0.387598	0.110469	3.508661	0.0006
DLOG(AQTR_GAS_PRICE_1116/PIDC_1...	-0.030135	0.014988	-2.010613	0.0466
AR(1)	-0.001289	0.005250	-0.245555	0.8064
AR(2)	-0.999269	0.000613	-1631.016	0.0000
MA(1)	-0.559577	0.090120	-6.209209	0.0000
MA(2)	0.910934	0.066826	13.63144	0.0000
MA(3)	-0.398992	0.091676	-4.352211	0.0000
SIGMASQ	0.000236	3.22E-05	7.335133	0.0000

R-squared	0.950844	Mean dependent var	0.002509
Adjusted R-squared	0.947621	S.D. dependent var	0.069559
S.E. of regression	0.015920	Akaike info criterion	-5.307163
Sum squared resid	0.030920	Schwarz criterion	-5.109630
Log likelihood	356.6192	Hannan-Quinn criter.	-5.226897
F-statistic	294.9859	Durbin-Watson stat	2.020847