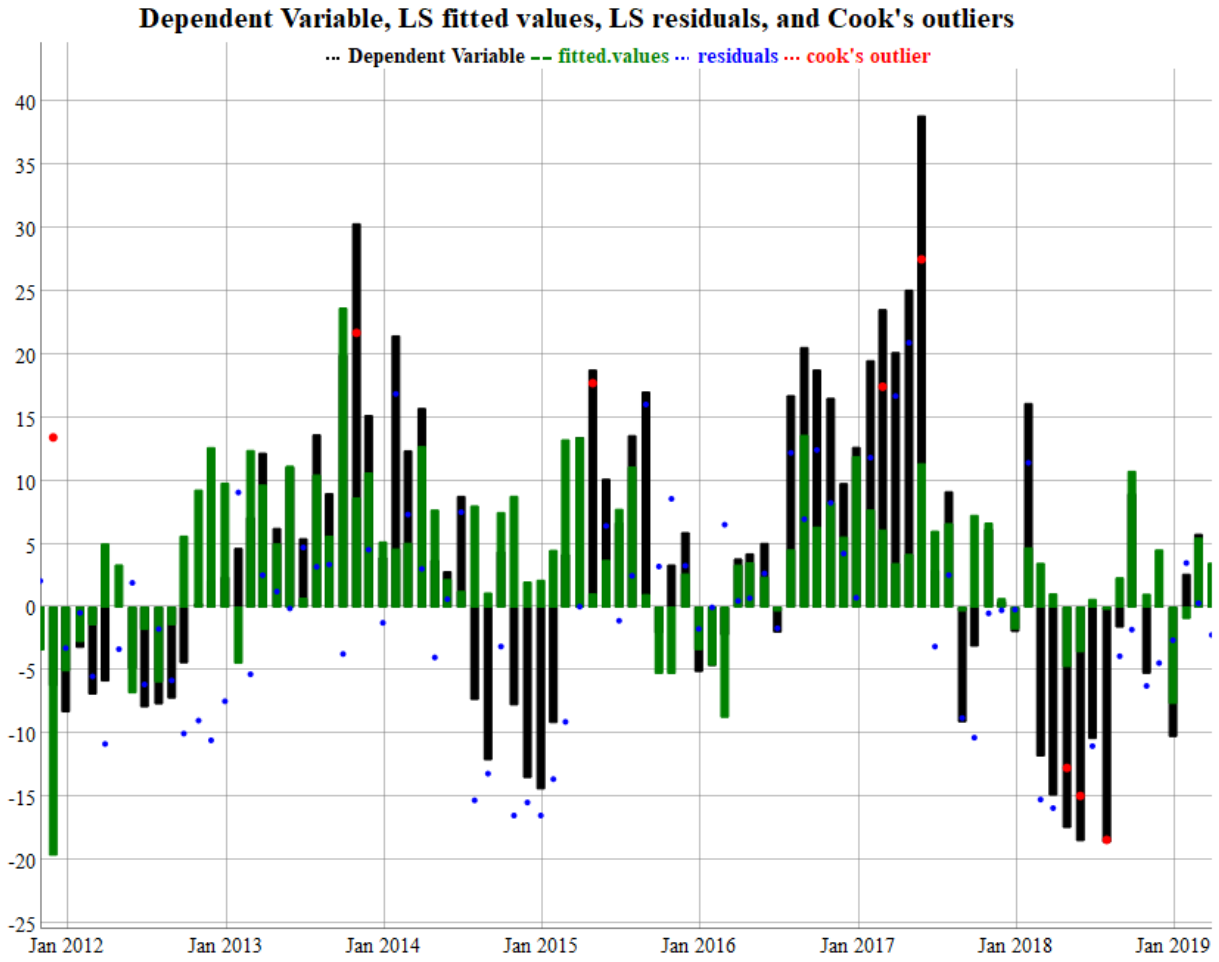
Help on OLS (Ordinary Least Squares) Regression

OLS estimates a linear relationship between one or more independent (exogenous) variables and a dependent (endogenous) one. The menu shows three types of outputs:
(1) In the upper left panel: Coefficients of the OLS regression with their significant level (symbolized by stars, their respective standard errors in parentheses, and their ranking in explaining the dependent variable, using stepwise regression, in square parentheses).
(2) In the upper right panel: The actual dependent variable (black), the fitted or estimate values by the OLS (green), the residual values, that are defined as the gap between actual and estimate values (blue dots), and cook's outlier residuals (red dots; see the help on the Cook's distance methodology).
(3) In the lower right panel (next page in this help): 6 tests on the OLS residuals are presented; 2 for serial correlation, 2 for linear relation, and 2 for homoscedasticity (constant variance). These tests check the validity of the OLS underlying assumptions (for a description of each test see the references below). The upper 2 tests check for serial correlation: Maximal acf (auto correlation function) in 5 lags, in which values close to 1 indicate serial correlation. Breusch-Godfrey test also checks for serial correlation (assuming H0: no serial correlation up to 5 lags) thus, figures close to 0 e.g., 0.01 indicate a rejection of H0. Serial correlation in residuals may reflect a bias of the OLS coefficients. The next two tests checks for a model linearity. The Rainbow and Harvey-Collier tests assume linear relations between independent variables and the dependent one thus, figures close to 0 indicate a rejection of the null namely, a non linear model is preferred to the OLS model used. The last 2 tests check for homoscedastic variance (constant or unconditional volatility). Both (Harrison-McCabe and Goldfeld-Quandt) tests' underlying H0, which is based on the residuals, is that the variance is constant thus, figures close to 0 indicate a rejection of the null i.e., the variance is heteroscedastic and another model with conditional variance, such as GARCH, is preferable.

Beside the advantages of changing parameters in the left panel (time conversion, variable type conversion, and including/excluding series to the model), an advantage of this menu is the ability to easily change the dependent variable (check its name) and its timeliness (use the slider: from 2 period lagging to 10 period leading).

OLS regression results and stepwise ranking [1 = worst]

	Dependent variable:
	NET.STOCK.Lead2
TONE [3]	-21.677
	(19.092)
VIX [2]	-0.113
	(0.147)
DTA125 [4]	4.832***
	(1.762)
NET.STOCK.1 [5]	0.519***
	(0.050)
ROR.STOCK.1 [1]	-4.970**
	(2.501)
Constant	2.537
	(2.288)
Observations	425
R^2	0.253
Adjusted R^2	0.245
Residual Std. Error	12.875 (df = 419)
F Statistic	28.452*** (df = 5; 419)
Note:	*p<0.1; **p<0.05; ***p<0.01



	OLS Residual Tests	P-Value
1	Max acf of 5 lags (serial correlation coefficients)	0.53
2	Breusch-Godfrey test (serial correlation: H0 - No ser. cor. (<6 lags)	0
3	Rainbow test (linearity: H0 - linear relations)	0.54
4	Harvey-Collier test (linearity: H0 - linear relations)	0.27
5	Harrison-McCabe test (heteroskedasticity: H0 - homoskedasticity)	0.24
6	Goldfeld-Quandt test (heteroskedasticity: H0 - homoskedasticity)	0.38

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