

Organization of the econometrics section:

1. Unit root:

Apply at least two tests. For example; Levin et. al (LL), Im et. al. or any two you choose.

Do NOT forget to include graphs for all variables.

2. Panel cointegration:

There are several methods: Pedroni, or FMOLS, or DOLS. When you choose any one, you must explain in details what it is, and why you prefer it.

3. Pool estimate.

4. Fixed effect estimate.

5. Test which one is better: Pool estimate or Fixed effect estimate.

6. Short run estimates (Panel causality test).

7. Diagnostic tests: only 2 tests: Redundant Fixed Effects, and Panel Cross-Section Dependence Test (Shown below).

Redundant Fixed Effects – Likelihood Ratio. EViews will estimate the appropriate restricted specifications, and will display the test output as well as the results for the restricted specifications.

Note that the specification has both cross-section and period fixed effects. When you select the fixed effect test from the equation menu, EViews estimates three restricted specifications: one with period fixed effects only, one with cross-section fixed effects only, and one with only a common intercept. The test results are displayed at the top of the results window:

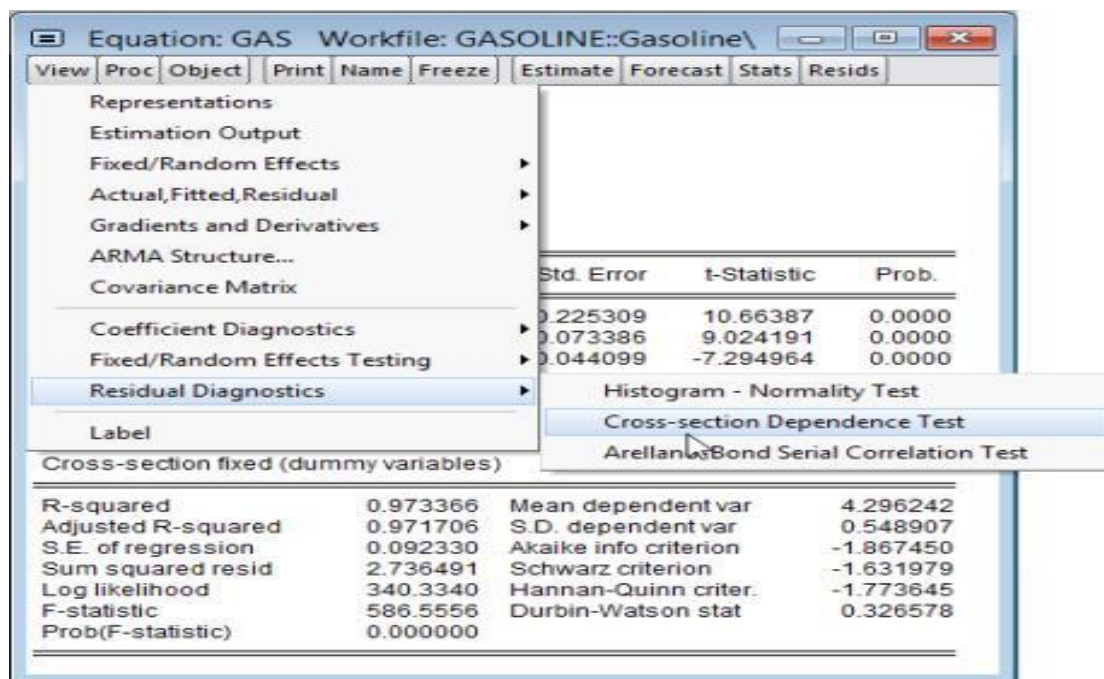
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	113.351303	(17,303)	0.0000
Cross-section Chi-square	682.635958	17	0.0000
Period F	6.233849	(18,303)	0.0000
Period Chi-square	107.747064	18	0.0000
Cross-Section/Period F	55.955615	(35,303)	0.0000
Cross-Section/Period Chi-square	687.429282	35	0.0000

Panel Cross-Section Dependence Test:

It is commonly assumed that disturbances in panel data models are cross-sectionally independent, especially when the cross-section dimension () is large. There is, however, considerable evidence that cross-sectional dependence is often present in panel regression settings.

To test for the presence of cross-sectional dependence, we click on **View/Residual Diagnostics/Cross-section Dependence Test**

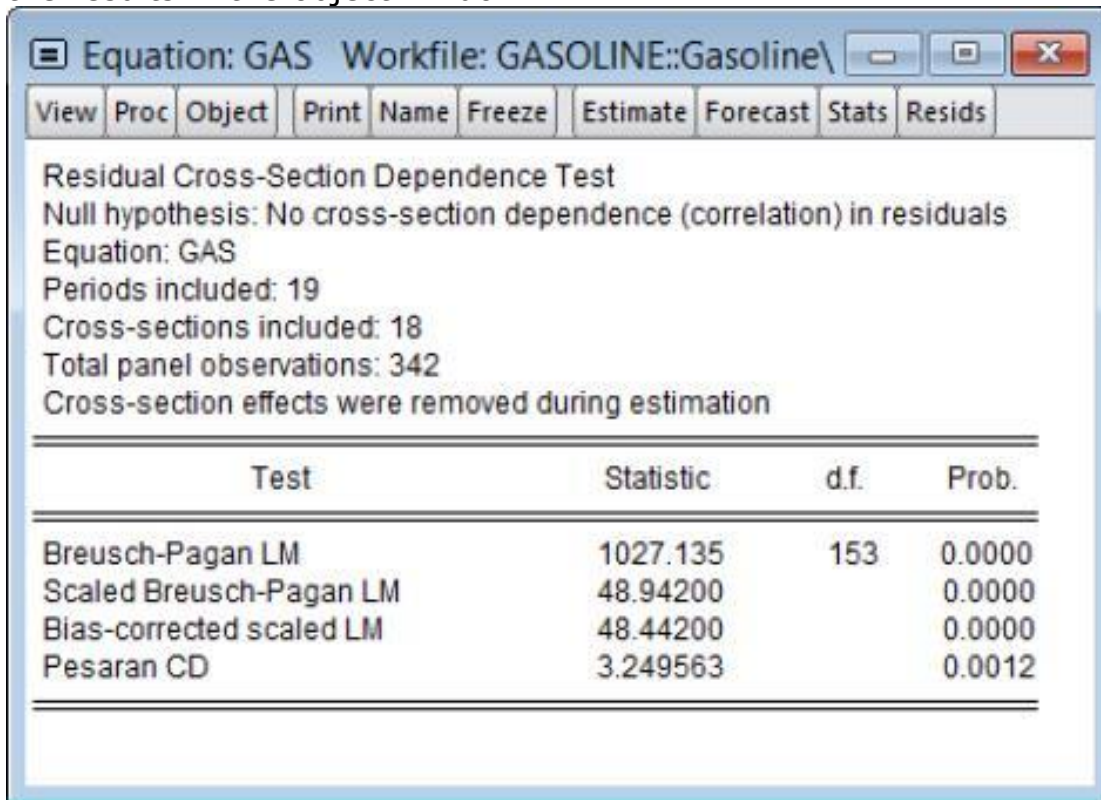


The screenshot displays the EViews software interface. The main window is titled 'Equation: GAS' and 'Workfile: GASOLINE::Gasoline\'. The 'View' menu is open, showing options like 'Representations', 'Estimation Output', 'Fixed/Random Effects', 'Actual, Fitted, Residual', 'Gradients and Derivatives', 'ARMA Structure...', 'Covariance Matrix', 'Coefficient Diagnostics', 'Fixed/Random Effects Testing', 'Residual Diagnostics', and 'Label'. The 'Residual Diagnostics' option is selected, and a sub-menu is open showing 'Histogram - Normality Test', 'Cross-section Dependence Test', and 'Arellano-Bond Serial Correlation Test'. The 'Cross-section Dependence Test' option is highlighted. In the background, a table of diagnostic statistics is visible.

	Std. Error	t-Statistic	Prob.
	0.225309	10.66387	0.0000
	0.073386	9.024191	0.0000
	0.044099	-7.294964	0.0000

Cross-section fixed (dummy variables)			
R-squared	0.973366	Mean dependent var	4.296242
Adjusted R-squared	0.971706	S.D. dependent var	0.548907
S.E. of regression	0.092330	Akaike info criterion	-1.867450
Sum squared resid	2.736491	Schwarz criterion	-1.631979
Log likelihood	340.3340	Hannan-Quinn criter.	-1.773645
F-statistic	586.5556	Durbin-Watson stat	0.326578
Prob(F-statistic)	0.000000		

EViews will compute the cross-section dependence tests and display the results in the object window:



The screenshot shows the EViews 'Object window' for the equation 'GAS'. The window title is 'Equation: GAS Workfile: GASOLINE::Gasoline\'. The 'Stats' tab is selected, displaying the results of a 'Residual Cross-Section Dependence Test'. The null hypothesis is 'No cross-section dependence (correlation) in residuals'. The test includes 19 periods and 18 cross-sections, totaling 342 panel observations. The results table shows four tests: Breusch-Pagan LM, Scaled Breusch-Pagan LM, Bias-corrected scaled LM, and Pesaran CD. All tests have p-values less than 0.05, indicating significant cross-section dependence.

Equation: GAS Workfile: GASOLINE::Gasoline\				
View	Proc	Object	Print	Name
Freeze	Estimate	Forecast	Stats	Resids
Residual Cross-Section Dependence Test				
Null hypothesis: No cross-section dependence (correlation) in residuals				
Equation: GAS				
Periods included: 19				
Cross-sections included: 18				
Total panel observations: 342				
Cross-section effects were removed during estimation				
Test	Statistic	d.f.	Prob.	
Breusch-Pagan LM	1027.135	153	0.0000	
Scaled Breusch-Pagan LM	48.94200		0.0000	
Bias-corrected scaled LM	48.44200		0.0000	
Pesaran CD	3.249563		0.0012	