4. Methodology and Data

This study empirically examines causality between co2 emissions manufacturing export using a time-series data of India from the World Bank for the period 1971-2012. The study explains that there is a unidirectional causality between CO2 emissions manufacturing export. Empirical results underline the adverse influences of merchandise export flows on CO2 emission Consider the CO2 emissions from manufacturing industries and construction in terms of (million metric tons) and Manufactures exports in terms of (% of merchandise exports).

The effect of Manufacturing Export on co2 emission will be estimated in the analysis by using the model below
X=α +β + ε ……. 1.
MFE = α + βCO2

Conventional unit root tests such as the ADF. Whether the variables include unit-root or not will be tested as in the test of time series analysis Stationary of data will be analyzed with the help of the equation below.

$\Delta\, yt = \beta 1_{yt-1} + \beta 2\, \Delta\, y_{t-1} + \beta 3 \Delta y_{t-2} + \boldsymbol{\beta} 4 + \beta 5_t$
..... 2.

To test for causality between MFE and CO2 Emission, we shall estimate the following regression equations: That Y Granger-causes X. If Y causes X and X does not cause Y, it is said that unidirectional causality exists from Y to X.

$$y_t = \alpha_1 + \sum_{i=1}^{n} \beta_i x_{t-i} + \sum_{j=1}^{m} \gamma_j y_{t-i} + \varepsilon_t \quad \text{..... (3)}$$

$$x_t = \alpha_2 + \sum_{i=1}^{n} \theta_i x_{t-i} + \sum_{j=1}^{m} \delta_j y_{t-i} + \varepsilon_{t-1} \quad \text{..... (4)}$$

If the F statistic is greater than a certain critical value for an F distribution, then we reject the null hypothesis that Y does not Granger-cause X (equation (1)), which means Y Granger-causes X.

5. Results and Discussion

Table 1: Unit Root

Group unit root test: Summary				
Date: 02/12/15 Time: 10:25				
Sample: 1971 2011				
Series: CO2_EMISSIONS_FROM_MANUF, MANUFACTURES_EXPO RTS____				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic selection of lags based on SIC: 0				
Newey-West bandwidth selection using Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	5.52538	1.0000	2	80
Breitung t-stat	-1.86178	0.0313	2	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	4.78276	1.0000	2	80
ADF - Fisher Chi-square	1.21626	0.8754	2	80
PP - Fisher Chi-square	1.31376	0.8590	2	80
Null: No unit root (assumes common unit root process)				
Hadri Z-stat	5.56599	0.0000	2	82
** Probabilities for Fisher tests are computed using an asympotic Chi				
-square distribution. All other tests assume asymptotic normality.				

Test of a unit root with differentiation. The Differentiated series has unit root. P-value is 1.000, which is less than 5%, which leads do not rejections of null hypothesis about the existence of the unit root. The unit root results above Table suggest that both series are stationary in first difference and thus integrated of lag1. Having found series exhibiting unit root in levels, the model is tested for the long run relationship between variables