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An Analysis of Relationship between Environment Quality and Economic Development (A Comparative Study of USA and India)

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ABSTRACT

Economic Development is not just development of economy but include social, political, cultural, institutional and environment development too. However, environment was never among the factors affecting economic development. As development concept evolved, importance of environment is realised. Still economic growth relationship with environment is considered for analysing sustainable development and not the economic development relationship. This paper thus discuss about the relationship between economic development and environment quality by focusing on India and USA. Apart from checking the existence of EKC Analysis in both countries, the turning point in each country is also derived. This shows the level of economic development required for having a positive contribution in environment. In order to represent economic development some variables like urbanisation, population, deforestation, GDP and coal consumption are selected via literature review and Ecological Footprint is used to represent environment degradation. Results of this analysis shows that India is very from the level of development required improving environment and it strictly needs actions to enhance the development of its economy without hampering environment. However, USA has already crossed this level and now is engaged in activities required to improve environment quality. Apart from this USA, also need to contribute in developing the economies far from this level.

1. Introduction

Economic Development is a process concerned with improving nation's social, economic and political well being. Often-economic development is confused with economic growth. Economic growth is concerned with value of output produced in economy and is reflected by GDP or GNP of a country however economic development is much broader thing. It is not only about value of product but also about economic welfare of a country. However, usually for analysing the relationship, we take economic growth in consideration and avoid economic development. Though economic growth is an important concept but it is not sufficient for evaluating economy's position. Hence, while evaluating any relation or impact economic development need to be considered. Other thing that is usually avoided is relevance of environment when we talk about economy. However in 19th century, researchers realized that gases present in atmosphere are causing the greenhouse effect thus raising temperature of planet and if not controlled could harm future. In 1970s, environment linkage with people too came forward and hence steps were taken towards protecting environment. in 1972, Stockholm conference put forward idea that for future generation safeguarding of environment is required. In 1987 Brundtland Commission report, it was concluded that for common future, development is important but should be sustainable. In 1990 Environment Kuznets Curve theory showed relationship between economic development and environment. This lead to bringing the concept of Sustainable Development in a Earth Summit Rio in Brazil. In 1992 World Bank World Development Report came stating that economic activity leads to degrading environment based on static assumption of taste, environment investment and technology. In later 1990s, Simon Kuznets theory of inverted U shaped relation between income inequality and per capita income modified to existence of non-linear relationship between Environment degradation and economic development. In 1997, Kyoto Protocol signed to United Nation Framework Convention on Climate Change with objective of reducing greenhouse gases. In 2000 Millennium summit organised by united nation 8 international development goals were decided which were called Millennium Development Goals. Recently United Nation General Assembly sets Sustainable Development Goals in 2015 having a collection of 17 goals worldwide, which set a target for 2030.

1.1. Literature Review

19th Century marked the beginning of concern towards environment followed by further emergence of interlinkage between economic development and environment. Club of Rome economists (1970s) stated that there exists limited source of environment resources and thus economic growth will continue for limited period. Beckerman (1992) paper showed that though at initial stage economic growth results in degrading environment but later on the only way to safeguard environment is by becoming rich. Shafik's (1994) through 1992 World Bank WDR popularized EKC thought by arguing that belief of environment being degraded by economic growth is based on assumptions of static nature of technology, taste and investment. Martinez-Zarzoso and Bengochea-Morancho (2004), Mazzanti, Montini and Zoboli (2007), Fodha and Zaghdoud (2010) and Cho, Almas and Yongsung (2011) found that the relation between environment quality and growth is not U shaped instead its N shaped i.e. after a point pollution will increase with income. Geetilaxmi Mohapatra and A.K. Giri (2009) showed EKC relationship in India. World Bank also

have its working paper on studying whether economic development and environment are complementary or work as a conflict for each other. Shaofeng Chan(2012) discuss EKC relationship between economic development and environment in China.. Cristine Villaruel, Paolo Magnata, and Gabi Schulze (2015) showed correlation between environment degradation and economic development. Inna Amesheva (2017) studies interrelation between current ecological challenge and need for sustainable development and discuss the need for china government to make this relation as urgent priority. M. Irsyad Ilham (2018) showed that two-way relationship is present between economic development and environment degradation in ASEAN Countries. All above reviews show that it is the difference in perspective, which differentiate the relationship status between economy and environment.

1.2. Rationale

Study of relationship between Environment Quality and Economic Development is important because environment quality not only affect availability of resources but also economic activities of a country and well-being of people living there. Further economic development leads to engaging in activities, which causes pollution, degrade natural quality and availability thus hampering environment quality. Thus, this inter-linkage should be considered to achieve objective of having development in an economy along with focusing on maintaining environment quality and resources availability for current and future generation. Comparative study between USA and India is done so as analyse the fact that developed country has already derived economic development by taking advantage of environment, which has degraded environment for world, and now lowering opportunities of development of developing countries. This fact analysis would give a statistical proof showing the need of contribution by developed countries in development of developing countries. There exist various research papers on describing the linkage between economic growth and environment quality. However, Economic growth is a narrow study of development thus economic development needs to be taken into consideration to derive the actual linkage between environment degradation and development.

1.3. Objectives

Study aimed at

- Examining empirically the relationship between economic development and environment quality of both countries (USA and India), and
- Determining turning point for both

1.4. Methodology

For fulfilment of above stated objective, secondary data is used. An econometric model is framed where Ecological Footprint is used as an indicator for environment quality and, GDP, Coal Consumption, Deforestation, Population, and Urbanisation are taken as an indicator of Economic Development. Further, this model will help in deriving turning point via quadratic equation for each indicator. Microsoft Excel used as a tool for deriving the results of this analysis. Null Hypothesis for the analysis is that there exist no relationship between environment degradation and economic development while Alternative Hypothesis state that there exist relationship between economic development and environment degradation. The data for the above analysis is taken from World Development Indicators (Databank from World Bank), International Energy Statistics and from Open data platform of Global Footprint Network. The period used for analysis is 1990-2014. As this study is mainly to compare two different economies, i.e. a developed and developing economy thus data is taken for USA (developed) and India (developing).

2. Analysis

There are many economic and demographic factors, which contribute in hampering environment like growing population, industrialisation, coal consumption, deforestation and urbanisation. Population raise the burden on environment for fulfilment of basic needs thus degrading environment. Growing Industrialisation is major sources of pollution. Increase in usage of coal makes availability of this resource extinct and lead to burden environment by the after effects of emissions. Urbanisation creates a burden of demands on urban thus leading to more deforestation, more waste, more resources usage and more pollution. Thus, these factors do affect environment quality.

2.1. Relationship between Economic Development and Environment Quality

Ecological Footprint (EF) is used as an indicator of environment quality as it indicate burden placed by human on environment resources. For economic development factors used are GDP, Coal Consumption, Deforestation, population and urbanisation. Forest cover is used as a proxy variable for deforestation and urban population is used as a proxy variable to represent urbanisation. After selection of the factors, hypothesis is stated.

H_0: No Relationship between the variable and Environment Degradation
H_1: Relationship Exists between Variables and Environment Degradation
Model is framed using the actual data of all the variables i.e.
Model I: $EF_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 Coal_{it} + \beta_3 Def_{it} + \beta_4 Pop_{it} + \beta_5 Urb_{it} + \varepsilon_{it}$

In this model EF represents Ecological Footprint, GDP represent Gross Domestic Product in Current US $, Coal represent Coal Consumption, Def represents Forest Cover, Pop represents population and Urb represents urban population. Subscripts attached with variables i.e ‘i’ and ‘t’ show the data of the concerned variable for country i at time period t. All β’s represent the proportion of change in environment degradation due to change in any factor and ε represent effect of factors, which are not used individually in model.

Due to usage of actual values, descriptive statistics analysis of the above model show very high variance representing high variability in data of both India and USA. Thus to simplify the model, results and reduce variability natural log transformation of the model is done. New transformed model is

Model II: $LnEF_t = \beta_0 + \beta_1 LnGDPt + \beta_2 LnCoal_t + \beta_3 LnDef_t + \beta_4 LnPop_t + \beta_5 LnUrb_t + \varepsilon_t$

Initially descriptive sheets (Table 1 and 2) for both countries reveal that all variables had very less variability. However, LnGDP of India had comparatively high variances but still it was below 0.5. Further variables have platykurtic data i.e. data is not concentrated. The data shows that in USA apart from forest cover, all variables are negatively skewed. Forest cover is the only variable that is positively skewed. While in case of India, all variables are positively skewed except population and urban population. These variables are negatively skewed.

Table 1: Descriptive Sheets of USA for Model II

LnEF		**LnDef**		**LnGDP**	
Mean	21.74	Mean	14.93	Mean	30.00
Standard Error	0.01	Standard Error	0.00	Standard Error	0.07
Median	21.74	Median	14.93	Median	30.03
Standard Deviation	0.07	Standard Deviation	0.01	Standard Deviation	0.34
Sample Variance	0.00	Sample Variance	0.00	Sample Variance	0.12
Kurtosis	-0.88	Kurtosis	-0.97	Kurtosis	-1.25
Skewness	-0.08	Skewness	0.78	Skewness	-0.29

Source: Author's own computation using data from above mentioned sources

LnCoal		**LnUrb**		**LnPop**	
Mean	14.53	Mean	19.23	Mean	19.47
Standard Err`or	0.02	Standard Error	0.02	Standard Error	0.01
Median	14.55	Median	19.25	Median	19.48
Standard Deviation	0.08	Standard Deviation	0.10	Standard Deviation	0.07
Sample Variance	0.01	Sample Variance	0.01	Sample Variance	0.01
Kurtosis	-1.37	Kurtosis	-1.05	Kurtosis	-1.12
Skewness	-0.21	Skewness	-0.33	Skewness	-0.24

Source: Author's own computation using data from above mentioned sources

Table 2: Descriptive sheet of India for Model II

LnEF		**LnCoal**		**LnDef**	
Mean	20.69	Mean	13.74	Mean	13.41
Standard Error	0.05	Standard Error	0.08	Standard Error	0.01
Median	20.62	Median	13.66	Median	13.40
Standard Deviation	0.23	Standard Deviation	0.40	Standard Deviation	0.03
Sample Variance	0.05	Sample Variance	0.16	Sample Variance	0.00
Kurtosis	-1.07	Kurtosis	-0.90	Kurtosis	-1.51
Skewness	0.30	Skewness	0.34	Skewness	0.31

Source: Author's own computation using data from above mentioned sources

LnGDP		**LnUrb**		**LnPop**	
Mean	27.22	Mean	19.54	Mean	20.80
Standard Error	0.14	Standard Error	0.04	Standard Error	0.02
Median	26.95	Median	19.54	Median	20.81
Standard Deviation	0.69	Standard Deviation	0.20	Standard Deviation	0.12
Sample Variance	0.48	Sample Variance	0.04	Sample Variance	0.02
Kurtosis	-1.36	Kurtosis	-1.22	Kurtosis	-1.18
Skewness	0.37	Skewness	-0.04	Skewness	-0.20

Source: Author's own computation using data from above mentioned sources

Regression results (Table 3 and 4) reveal that some of the variables are not significant (by p- test) and hence need to be removed from the model. For USA log function of population and urban population showed p value to be 0.26 and 0.32 which is very high and even greater than the 1%, 5% or 10% level of significance (i.e. 0.26 > 0.01/0.05/0.10 and 0.32 > 0.01/0.05/0.10). Thus, these variables fail the p-value test of significance thus need to be removed from the model. However, for better clarification the test is run by removing one variable at a time. When urban population is removed from the

model, still log of population showed very high p-value i.e. 0.21 > 0.01/0.05/0.10 and when population is removed from the model, again log of urban population p-value was very high i.e. 0.26 > 0.01/0.05/0.10. Thus, this shows that both the variables are highly insignificant and both variables need to be removed from the model. Same thing happened with India too. When regression was run for India p value of urban population and population was very high (i.e. 0.63>0.01/0.05/0.10 and 0.70 >0.01/0.05/0.10) showing that both of the variables are insignificant in the model.

Table 3: Regression Results of USA for Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	148.03	35.08	4.22	0.00
LnDef	-5.39	4.54	-1.19	0.25
LnGDP	0.65	0.23	2.84	0.01
LnPop	-7.88	6.79	-1.16	0.26
LnUrb	4.37	4.31	1.01	0.32
LnCoal	0.27	0.10	2.62	0.02

Source: Author's own computation using data from above mentioned sources

Results after removing Urban Population Variable from Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	164.61	31.06	5.30	0.00
LnDef	-9.49	2.08	-4.56	0.00
LnGDP	0.51	0.18	2.84	0.01
LnPop	-1.05	0.80	-1.31	0.21
LnCoal	0.27	0.10	2.60	0.02

Source: Author's own computation using data from above mentioned sources

Results after removing Population Variable from Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	166.05	31.73	5.23	0.00
LnDef	-10.09	2.08	-4.85	0.00
LnGDP	0.46	0.16	2.86	0.01
LnUrb	-0.60	0.51	-1.17	0.26
LnCoal	0.27	0.10	2.61	0.02

Source: Author's own computation using data from above mentioned sources

Table 4: Regression Results of India for Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	56.94	37.89	1.50	0.15
LnCoal	0.26	0.21	1.24	0.23
LnDef	-3.49	2.13	-1.64	0.12
LnGDP	0.22	0.06	3.55	0.00
LnPop	-1.02	2.64	-0.38	0.70
LnUrb	1.14	2.32	0.49	0.63

Source: Author's own computation using data from above mentioned sources

Results after removing Urban Population Variable from Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	39.79	14.46	2.75	0.01
LnCoal	0.35	0.08	4.41	0.00
LnDef	-2.66	1.25	-2.12	0.05
LnGDP	0.22	0.06	3.60	0.00
LnPop	0.28	0.18	1.51	0.15

Source: Author's own computation using data from above mentioned sources

Results after removing Population Variable from Model II

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	43.59	14.91	2.92	0.01
LnCoal	0.33	0.09	3.75	0.00
LnDef	-2.85	1.29	-2.21	0.04
LnGDP	0.22	0.06	3.62	0.00
LnUrb	0.25	0.16	1.55	0.14

Source: Author's own computation using data from above mentioned sources

Same thing is done in India too i.e. model is tested by removing one variable at a time. When urban population variable is removed from the model, high p-value 0.15> 0.01/0.05/0.10 and when population variables is removed then again high p-value i.e. 0.14 >0.01/0.05/0.10. Hence, both these variables also need to be removed from India's model. This analysis of model leads to framing of new model by removing both insignificant variables i.e.

Model III: $LnEF_t = \beta_0 + \beta_1 LnGDPt + \beta_2 LnCoal_t + \beta_3 LnDef_t + \varepsilon_t$

Regression results (Table 5 and 6) of model III shows that for USA p-value of log of coal, forest cover and GDP is statistically significant and now the model is correctly specified (i.e. 0.00 <0.01, 0.00 <0.01 and 0.01 = 0.01). However, for India, coal and GDP is statistically significant but forest cover is only significant at 11%. Further Goodness of fit test is done to see how much the model is being specified by the variables and for USA, squared R-value is 0.94 specifying that about 94% of the data is being described by the model and the variables used here correctly describe the data. In case of India, the squared R-value is 0.99 thus specifying that the model is representing about 99% of the data and giving 99% of the fitness of independent variables to the model. Standard error for both the countries is very less i.e. only 0.02. Hence, stating that there is only 2% chance of having any precision error while calculating coefficients. F value of ANNOVA table for USA is 103.4 > F critical value i.e. 3.07 at 5% significance level and 4.87 at 1% level of significance. This thus leading to rejecting the null hypothesis that all variables have same variance and hence showing that each variable has different variance and one variable cannot just tell the variance of other variables. For India F value in ANNOVA Table is 916.40, which is also greater than the critical value of F at 5% and 1% level of significance i.e. 3.07 and 4.87. Hence showing that for India too each variable has different variance and one variable cannot explain the variance of other variable. This proves that consideration of each variable individually is important.

After basic testing's, it is required to know whether there exist any significant relationship between factors and environment. For this t-test is done. Firstly t-test is done on USA based variables and the results shows that null hypothesis need to be rejected. This is because the t critical absolute value for 5% level of significance is 2.08. This t critical value is greater than calculated value for all variables i.e. for LnCoal 2.88 > 2.08, for LnDef absolute value is 4.73 > 2.08 and finally for LnGDP 5.22 > 2.08. Thus their exist relationship between Coal Consumption, Forest Cover, GDP and EF. Even this test is significant for 1% level of significance because for 1% level of significance t critical absolute value is 2.83. However the relationship between each variable and EF can be seen from coefficient of variables. For first variable i.e. LnDef we can see that as forest cover increase by 1% there is decrease in environment degradation by 9.9%. We can thus conclude that there exist negative relationship between forest cover and environment degradation. Second variable whose relationship is seen is LnGDP. The coefficient of this variable shows that, as GDP increase by 1% there is also increase in environment degradation by 0.28%. Hence, GDP and Environment degradation has positive relationship. Lastly, LnCoal coefficient that as there is increase in coal consumption by 1% there is also increase in environment degradation by 0.3%. Hence depict the existence of positive relationship between coal consumption and environment degradation.

After studying the results for USA, now same test is done for India so as to know whether in India variables do have any relationship or not. t- Statistic critical value at 1%, 5% and 11% is determined because forest cover variable is only statistically significant at 11% significance level. Thus, the absolute value for t is 2.83 at 1% significance level, 2.08 at 5% significance level and 1.67 at 11% significance level. Firstly, the test is done for LnCoal where t calculated absolute value is 6.36, which is greater than 2.83, 2.08 and 1.67. Hence, this shows that as calculated value is greater than critical value thus we reject the null hypothesis that there exists no relationship between the variables showing that coal consumption has impact on environment quality. The proportion of effect is being explained by the coefficient value of LnCoal. As there comes 1% increase in coal consumption this leads to increase in environment degradation by 0.42%. Thus, positive relationship exists between coal consumption and environment degradation. Secondly, for LnDef t test is run and t calculated absolute value i.e. 1.68 is greater than 1.67 thus showing that for 11% significance level the null hypothesis is rejected giving the proof that there exists relationship between variable and environment quality. Coefficient value of this variable shows the proportion of relationship. Thus, we can conclude that with 1% increase in forest cover will lead to decrease in environment degradation by 2.06%. Thus showing that there exists negative relationship between forest cover and environment degradation. Lastly for LnGDP t-value test is done. The calculated t absolute value is 3.24, which is greater than critical absolute value of t i.e. 2.83 at 1% significance level, 2.08 at 5% significance level and 1.67 at 11% significance level. This thus reveals that null hypothesis will be rejected as t calculated value is greater than t statistic critical value. Hence, there exists a relationship between GDP and Environment Degradation. However, the proportion of change in environment degradation due to GDP is explained by coefficient of LnGDP. For 1% increase in GDP, the environment degradation increases by 0.2% thus showing that as we focus on improving the income per capita of country it

leads to degrade environment. Hence, there exist positive relationship between GDP and Environment Degradation.

There can be the case that autocorrelation problem may exist in the model for which initially durbin Watson test is done. For USA based data d calculated value is 2.13 while d lower bound and upper bound value at 1% level of significance is 0.906 and 1.409 and 5% level of significance is 1.123 and 1.654. As the calculated value is greater than both these values thus 4 – d_L and 4 - d_U is calculated. Now d value lies between d_U and 4 - d_U. Hence durbin Watson statistic reveals that no autocorrelation exists and hence the model is free from the issue of autocorrelation. Same way durbin Watson test is done for India and for India d value is 0.99. If compared at 1% level of significance and 5% level then d value lies in area of no decision for 1% level and no positive autocorrelation for 5% level of significance. These results though show that no positive autocorrelation exist for India but nothing is mentioned about negative autocorrelation and further as one variable in India's model is significant at 11% level of significance thus autocorrelation need to be tested at this level but table doesn't give tabulated value for this significance level hence Runs Test is run to test Autocorrelation. No. of Positive residuals are 13 and no. of negative residuals are 12. This is same for both India and USA. No. of Runs is determined from the table i.e. 8. For USA no of Runs is between the confidence interval derived at 1% level of significance (-1.5923, 28.5523) and 5% level of significance i.e. (0.801152, 26.15885), thus showing that no autocorrelation exists. Same way it is done for India but at 11% level of significance. The interval is (5.549251, 21.41075) and as the no. of runs lies within the interval we reject the hypothesis that autocorrelation can exist and conclude that no autocorrelation exists.

Table 5: Regression Results of USA for Model III

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	156.70	30.98	5.06	0.00
LnDef	-9.90	2.09	-4.73	0.00
LnGDP	0.28	0.05	5.22	0.00
LnCoal	0.30	0.10	2.88	0.01

Source: Author's own computation using data from above mentioned sources

RESIDUAL OUTPUT

D	2.13
At 5% level of Significance	
d_L	1.123
D_U	1.654
4-d_L	2.877
4-D_U	2.346
At 1% level of significance	
d_L	0.906
D_U	1.409
4-D_L	3.094
4-D_U	2.591

Table 6: Regression Results of India for Model III

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	37.21	14.80	2.51	0.02
LnCoal	0.42	0.07	6.36	0.00
LnDef	-2.06	1.22	-1.68	0.11
LnGDP	0.20	0.06	3.24	0.00

Source: Author's own computation using data from above mentioned sources

RESIDUAL OUTPUT

D	0.991001
At 5% level of Significance	
D_L	1.123
D_U	1.654
4-d_L	2.877
4-D_U	2.346
At 1% level of significance	
D_L	0.906

D_U	1.409
$4-d_L$	3.094
$4-D_U$	2.591

Now the turning point of the model is determined. For determining this its required to consider the scenario of long time and thus square of each variable is also taken into consideration. New model is framed for determining the turning point in the model i.e.

Model IV: $LnEF_t = \beta_0 + \beta_1 LnGDP_t + \beta_2 LnGDP_t^2 + \beta_3 LnCoal_t + \beta_4 LnCoal_t^2 + \beta_5 LnDef_t + \varepsilon_t$

Quadratic Relationship between the variables helps in determining the presence of inverted U shaped which in turn also helps in determining the turning point. Turning point is referred to the point after which the direction of the curve changes. In environment Kuznets curve turning point is referred to the point after which instead of contributing in environment degradation, development of economy starts contributing in improvement of environment and direction of existence of positive relationship between economic development and environment degradation changes to negative relationship existence. Turning point is derived from the first derivative of the respective variable i.e.

Turning point of LnGDP = - ($\beta_1/2\beta_2$)

Turning point of LnCoal = - ($\beta_3/2\beta_4$)

Using the above equations turning points are derived for each variable in both countries. Regression results (Table 7 and 8) for above model give the value for coefficients. In USA turning point of LnGDP is 30.04798213 and for GDP is 11211735227421.80 US $. Our dataset shows that USA has already reached this level and now is contributing in improvement of environment by not only adopting techniques and steps of safeguarding environment but also supporting others in various activities and make more and more people aware of usage of sustainable environment and importance of environment. Finally, LnCoal turning point is 14.27942 and for Coal is 1590274. USA has already crossed the level and infact dataset shows that now coal consumption in USA are falling which thus could lead to degrade environment in future. Same way turning points are derived for India too and for LnCoal the turning point is 23.34155425 and for Coal is 13712233817. India still has not achieved this turning point. For LnGDP the turning point is 65.1536159 and for GDP it is 19763136171299600000000000000 US $.India has not achieved this level.

Table 7: Regression Results of USA for Model IV

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-437.24	72.74	-6.01	0.00
GDP	30.55	4.86	6.29	0.00
GDP^2	-0.51	0.08	-6.27	0.00

Source: Author's own computation using data from above mentioned sources

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	347.40	234.74	1.48	0.15
Coal	-45.63	32.33	-1.41	0.17
$Coal^2$	1.60	1.11	1.44	0.17

Source: Author's own computation using data from above mentioned sources

Table 8: Regression Results of India for Model IV

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	8.41	15.85	0.53	0.60
GDP	0.57	1.16	0.49	0.63
GDP^2	0.00	0.02	-0.21	0.84

Source: Author's own computation using data from above mentioned sources

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	6.87	6.89	1.00	0.33
Coal	1.43	1.00	1.43	0.17
$Coal^2$	-0.03	0.04	-0.84	0.41

Source: Author's own computation using data from above mentioned sources

3. Conclusion

Environment is not just an externality, which needs to be taken care, but instead it is an important source of boosting economic development. It leads to create opportunities for having a better living standard and help in boosting economic growth. Thus keen attention need to be paid on improving its quality and safeguarding it. USA being a developed country has already crossed the levels of degrading environment in its initial stage of development and thus now contributing in improving it. However, India is lacking behind a lot. Studying the economy of India does not show scope of crossing that level anytime sooner. Thus, it's required that contribution for improving economy need to be encouraged and instead of just degrading now and improving later, it should follow the

strategies of growth which doesn't hamper environment a lot. Economic Development should be done using the technologies and method that would not degrade environment and further strategies should be made to control inequality and urbanisation issues. Each sector plays important role in growth thus overall development is required considering environment in each step.

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