

The relationship between the economy and environment economics essay



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Introduction

The most important concern around the world in all societies was & rather saying is Environment and also the economics, this we have the proof from the history. But unfortunately we are developing economically but the nature, quality, and content of the environment is changing. As being considered we can say that they are related hand in hand, this can be known more with the help of Kuznets curve, the graphical representation of the Simon Kuznets's theory (' Kuznets hypothesis). This shows the economic inequality during the time the country is developing and when after it reaches the critical stage of average income it begins to decrease.

Example: General observation of the newly industrialized countries such as Bangkok, Beijing, Kolkata, and also the Mexico City are more polluted than they were twenty to thirty years ago, on the other hand the older industrial countries such as New-york, Tokyo, London, are cleaner than they were twenty to thirty years ago. This opposite paradox raises the question that whether higher income levels result in a better or worse environment. Also the environment Kuznets Curve hypothesis says that there is an inverted U-shaped relationship between various indicators of environmental degradation and per capita income.

Also it came to be known as Environmental Kuznets Curve as it is similar in shape of the income -inequality relationship which was an early discovery of Russian - American Economist Simon Kuznets.

This topic was raised in early 1900's with Gene Grossman & Alan Krueger's (1991) and further it became more famous by World Bank's World Development report in the year 1992 (IBRD, 1992).

The main argument in the report was " The view that greater economic activity inevitably hurts the environment is based on static assumptions about technology, tastes and environmental investments"

But also the economic factors, changes in environmental impacts, may be responsible for rising or declining environmental degradation over the course of economic development. Various studies make different simple assumptions about the economy like Lopez (1994), Selden and Song (1995)-" Pollution is generated by production and not by consumption". John and Pecchenino (1994), John et al. (1995), and Mc Connell (1997) - " Pollution is generated by consumption rather than by production activities".

EKC for emission is monotonic as more recent evidence suggests, the ability of a model

. A 1995 study by Douglas Holtz- Eakin & Thomas Selden examined emission of Carbon Dioxide, a global pollutant. Their analysis reveals that emission continues to increase with the income.

Figure 1: Basic Environmental Kuznets Curve (EKC)

The EKC & Environmental Degradation

As in the beginning of the topic said this issue was raised by Gene Grossman & Alan Krueger in the early 1900's, their research showed that low-level of

per capita income, concentrations of Sulphur -Dioxide, suspended particulate matter, water pollutant increase as income increase but once the per-capita reaches a particular point concentrations of these pollutants decrease as income continues to rise. This kind of development is associated with the use of modern agricultural technology which in turn reduces the usage of land. Also the demands for usage of wood as energy are likely to grow as the country develops. In their 1994 study, Maureen Cropper and Charles Griffiths examined the EKC shape for deforestation. The overall result was a hump-shaped relation between per-capita income and deforestation

The Reasons for the choice of Indicators

Looking below there are three types of environmental depletion, & hence it is very important to recognize that the environmental output is the result of the interplay emission and misuse of the sources or in other words regeneration of the renewable resources. The relation between the income & environment found by simple methods will not be able to differentiate between the demand & supply forces that run this relation. Hence income acts as a surrogate for a variety of influences & for this Grossman & Krueger provides apprehensive explanation of these influences as below;

The Scale of Economic Activity

A larger scale of economic activity per unit of area, all else being equal, results in increased levels of resource use and waste generation. Here, income acts as an indicator of economic activity, encouraging a positive relation between environmental degradation and income.

The Composition of the Economic Activity

Different sectors of the economy have differential pollution and resource use intensities. Industry, especially manufacturing, tends to be more pollution intensive than either agriculture or services. The share of industry in a nation's gross domestic product (GDP) first rises with economic growth and then declines as the country moves from the preindustrial to the post-industrial stage of development. This influence encourages an inverted U-shaped relationship between environmental pollution and income level.

The Technique Effect

People who have low level income are more worried about their food and other bare necessities but less concerned about the environment and its quality. On the other side where people who earn more would be more concerned about the environmental quality as it is related to their on-going prosperity. Looking on supply part low income means that countries and its individuals are not able to afford on the abatement of environment even if it demands. This proves that Economic growth not only creates the demand for improved environmental quality but it also makes the resources available to meet the supply. Stripped of the scale and composition effects, the technique effect predicts that environmental degradation would decline as per capita income increases.

Selected Empirical data on environmental degradation & Economic development

To emphasize on the data we have selected Middle-East & North Africa a developing nation while on the other side developed nation as United

Kingdom as underlying; the following are graphical presentations of the data.

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Graphical representation & Analysis

Graph 1: Middle- East & North Africa (WDI)

Middle- East & North Africa (WDI) Analysis

Taking the data of the developing country like Middle- East & North Africa, from the year 2004- 2008 the values calculated are shown in percentage (%).

IN the year 2004 the agricultural methane & nitrous oxide was neutral but as the nation was growing the very next year in 2005 it raised upto 25. 92% & 92. 01%. Gradually as the years passed it decreased was negligible.

The GDP per capita growth annually in the country from 2004-2008 is about 4. 23 % to 3. 85 %; It is fluctuating in this period of five years like in the year 2005 the per capita is 2. 60 %.

CO2 intensity per kg of the oil equivalent energy use in the year 2. 94 % in the year 2004 and in the year 2005 it is 3. 04 %, but later it has become negligible.

CO2 emission metric tons per capita in the year 2004-2005 is 3. 41% & 3. 62 % respectively but as the years passed it went to negligible as the individuals in the nation becomes aware of the environmental preservation.

The industrial methane and nitrous oxide emission in the atmosphere in the beginning is nil but in the year 2005 it was 51. 97 % & 3. 37 % which in comparison to CO2 emission per metric ton is about 209070. 00 & 151830. 00, but soon it went to nil in the gradual years.

Till now there has been no evidence or strong proof showing the hindrance in the economic development because of population growth but taking the country like Middle- East & North Africa population density per sq. km in the year 2004 it was 34.90 % as the years have passed it has gradually grown to 37.57 %. This is quite a normal rate of population growth as compared to countries like INDIA & CHINA. The growth of population in percentage from the year 2004 -2008 is 1.90 % - 1.84 %. Looking at the total population in the country in figures is 301666256.82 & 324785109.86.

As the years have passed the data for the population living under poverty line in the country is nil.

The tax revenue produced by the nation in the years from 2004- 2008 is 14.98 % - 16.39 % which is roughly about 17 % which had a growth of revenue collection in the country, taxation in a democratic nations are always beneficial for the economic and public development. Also the tax charged on the profit percentage has declined from 56.19 % to 42.37 % from the year 2004 to 2008. There are no data available of water pollution of other industries.

Graph 2: United Kingdom (WDI)

United Kingdom (WDI) Analysis

For a developed nation like United Kingdom, the data for pollutants and the environmental degradation is negligible and in some years it is nil.

The agricultural methane and nitrous oxide emission for the year 2004 it has been nil but in the year 2005 it is 50.71 % and 52.20 % respectively and in the later years it is negligible.

The CO₂ intensity per kg of oil equivalent to oil energy and the emission for the years 2004-2005 is 9.26 % - 9.07 % and 2.38 % - 2.33 %.

The GDP per capita growth annually is 3.26 % -0.70 % looking at this data it tells that it has been fluctuating in between 3 % to 1% and on the other hand the gross capital formation of the nation in the years 2004- 2008, 17.49 % - 18.75 %. Even this data shows a fluctuation of the capital formation.

The major environmental rather saying that global environmental pollutant CO₂ gas, in the years 2004 per metric ton emission it was about 9.26 %- 9.07%, and the intensity of the gas per kg of oil equivalent energy use 2.38 % -2.33 % respectively. Gradually this emission reduced to negligible.

The industrial emission of the pollutants like methane and nitrous oxide equivalent to CO₂ emission was 35.66% - 37.08% for the year 2005 only later the data for these emissions are not available.

The population in a developed nation like United Kingdom is not as devastating as Asian countries like CHINA or BANGLADESH from the data available from WDI from the years 2004- 2008 it has been 0.52 % -0.65 %, and the density of population per sq. km is 247.51 % - 253.79 %. These ratios show a very low growth of population.

The revenue collection and taxation on the profit from the year 2004- 2008 is 27. 00 % - 27. 99 % while the taxation is about 35. 80 % constantly in the five years.

Hence lastly the population living under poverty line is nil.

The water pollution in the year 2004 was 46. 20 % these were early years of industrialization but as the years passed that has gradually become negligible.

Comparative Study

The above table gives a clear idea that while a nation is developing that as said in early example that if the income is low the country as well its individual are not able to afford the investment on environmental abatement and its resources. We have taken the base year as 2004 while the completion is on the year 2008, In Middle east in the year 2005 agricultural nitrous oxide emission was about 92% while on other hand United Kingdom had only 52% that shows a difference of around 40% . hence that proves that low income are more considerate of the food and other bare necessities while people with high income are more considerate of the environment which goes hand in hand for prosperity. The next example shows about the Tax the country pays on its profit in which Middle East countries pays about 40-45 % in comparison to it United Kingdom just pays 30-35 % which shows the difference of 10%, the comparison of the road transportation development shows the vast difference, this is seen from the vehicles running on the road In the Middle- East countries in early years of development . i. e. in 2004 there is no record of any vehicles running on the

road, while in United Kingdom from 2004 to 2005 in the span of one year it grew from 79 % to 80 %, this shows there was increase of 1 %, but slowly as the nation developed people realise the importance of the environment preservation and the national income as well. The individuals in the nation invested in public transportation which induces for the lesser environmental pollution and slowly and gradually in the year 2008 there are no individual vehicle running on the road. From the beginning in Middle East as it is low income nation people were not so economically sound enough for spending on owning individual transportation. Even population plays a huge role for the development of the nation if looking at two developing nations . i. e. INDIA & CHINA they are facing the unsolved problem of Population Explosion while nations like UK has low population growth this is proved by the figures from the year 2004 to 2008 0. 52 % to 0. 65 % which in turn has good effect on the nations development economically socially environmentally and also the effects on the resources, as the growth was gradual every aspect of the development plan goes according to the guidelines. On the other hand in nations like Middle- East & North Africa though being a developing nation the population growth was in control and not exploding unlike CHINA & INDIA. Studies reveal that population growth does adversely affect environment as well as the economy of the nation, but still there is no clear relationship has been proved in accordance with the figures or any kind of data. If there is enormous population growth in the nation the man-power increases and economic problems like unemployment, low wages or salaries, illiteracy and many other apart from economic problems there are also social problems like less space for per person, which will give rise to crowded place, less supply of all the resources like water, food, clothing , shelter. The demand of

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the resources is more than the supply which causes the Economic as well as the environmental imbalance.

CO₂ emission in the atmosphere in the year 2004-2005 was 3.41% - 3.62% in the developing nation like Middle- East & North Africa but as the nation develops and the per capita income increase there will be environmental degradation for a specific period but once it has reached it becomes stable. Looking at UK once being developing nation the CO₂ emission was very high (9.06% - 9.27%) in the year 2004-2005 but now as the economy has become stable so there is balanced environment. Hence once while on the way to development there will be imbalance in economy & environment but once it reaches to the peak it becomes stable and after few years it becomes balanced.

Conclusions

The proofs shown here about the statistical analysis on which the environmental Kuznets curve is based is not as strong as there is less evident for a common inverted pathway as the countries follow when their income rises.

Also there can be an inverted U-shaped relation between urban ambient concentrations of some pollutants and income. But to prove them they should be tested on stronger time series or panel data methods.

From the above arguments it proves that unlikely EKC is a complete model of emissions or concentrations. The income flexibility of emissions is likely to be less than one but not negative in wealthy countries as proposed by EKC

hypothesis. On the other side in slow growing economies emissions reducing
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technological change can overcome the scale effect of rising income per capita on emissions. Now the challenge is to revisit some of the issues addressed earlier in the EKC literature using the new decomposition models and rigorous panel data and time series statistics.