A STUDY ON THE IMPACT OF ECONOMIC GROWTH ON ENVIRONMENT

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ABSTRACT

Over the last decade, India's strong growth has increased employment opportunities and allowed millions to emerge from poverty. India's remarkable growth record, however, has been clouded by a degrading environment and growing scarcity of natural resources. Mirroring the size and diversity of its economy, environmental risks are wide ranging and are driven by both prosperity and poverty. In a recent survey of 178 countries whose environments were surveyed, India ranked 155th overall and almost last in air pollution exposure. The survey also concluded that India's environmental quality is far below all BRIC countries [China (118), Brazil (77), Russia (73), and South Africa (72)]. Also, according to another recent WHO survey, across the G-20 economies, 13 of the 20 most polluted cities are in India. Simultaneously, poverty remains both a cause and consequence of resource degradation: agricultural yields are lower on degraded lands, and forests and grasslands are depleted as livelihood resources decline. To subsist, the poor are compelled to mine and overuse the limited resources available to them, creating a downward spiral of impoverishment and environmental degradation.

Keywords: Degrade, Mirroring, consumption, Economic growth, Real output

INTRODUCTION

Economic growth means an increase in real output (real GDP). Therefore, with increased output and consumption we are likely to see costs imposed on the environment. The environmental impact of economic growth includes the increased consumption of non-renewable resources, higher levels of pollution, global warming and the potential loss of environmental habitats.

However, not all forms of economic growth cause damage to the environment. With rising real incomes, individuals have a greater ability to devote resources to protecting the

environment and mitigate the harmful effects of pollution. Also, economic growth caused by improved technology can enable higher output with less pollution.

TOWARDS A GREEN INDIA

- Although the past decade of rapid economic growth has brought many benefits to India, the environment has suffered, exposing the population serious air and water pollution.
- A new report finds that environmental degradation costs India $80 billion per year or 5.7% of its economy.
- Green growth strategies are needed promote sustainable growth and to break the pattern of environmental degradation and natural resource depletion. Emission reductions can be achieved with minimal cost to GDP.
- The pace of global economic growth in the past century has led to a decline in the availability of natural resources such as forests (cut down for agriculture/demand for wood)
- A decline in sources of oil/coal/gas
- Loss of fishing stocks – due to overfishing
- Loss of species diversity – damage to natural resources has led to species extinction.

EXTERNAL COSTS OF ECONOMIC GROWTH POLLUTION

Increased consumption of fossil fuels can lead to immediate problems such as poor air quality and soot, (London smogs of the 1950s). Some of the worst problems of burning fossil fuels have been mitigated by Clean Air Acts – which limit the burning of coal in city centers. Showing that economic growth can be consistent with reducing a certain type of pollution.

LESS VISIBLE MORE DIFFUSE POLLUTION

While smog were a very clear and obvious danger, the effects of increased CO2 emissions are less immediately obvious and therefore there is less incentive for policymakers to tackle. Scientists state the accumulation of CO2 emissions have contributed to global warming and more volatile weather. All this suggests economic growth is increasing long-term environmental costs – not just for the present moment, but future generations.

World-co2-emissions-per-capita

This graph shows CO2 emissions per capita. It shows a 66% rise in per capita pollution between 1960 and 2014. The total emissions are also higher because of population growth. 1960 to 2014 was a period of strong economic growth and despite the development of new technologies, has failed to halt the rise. The last few years 2011 to 2014 show a levelling – this is only a short time range, but could be due to improved global efforts to reduce pollution. (it was also a period of low economic growth in Western economies)

- **Damage to nature** Air / land / water pollution causes health problems and can damage the productivity of land and seas.
- **Global warming and volatile weather**Global warming leads to rising sea levels, volatile weather patterns and could cause significant economic costs
- **Soil erosion**Deforestation resulting from economic development damages soil and makes areas more prone to drought.
- **Loss of biodiversity** Economic growth leads to resource depletion and loss of biodiversity. This could harm future 'carrying capacity of ecological systems' for the economy. Though there is uncertainty about the extent of this cost as the benefit of lost genetic maps may never be known.
- **Long-term toxins** Economic growth creates long-term waste and toxins, which may have unknown consequences. For example, economic growth has led to increased use of plastic, which when disposed of do not degrade. So there is an ever-increasing stock of plastic in the seas and environment – which is both unsightly but also damaging to wildlife.

U-Shaped curve for economic growth and the environment

- **Kuznets-environment:** One theory of economic growth and the environment is that up to a certain point economic growth worsens the environment, but after that the move to a post-industrial economy – it leads to a better environment.
- **Change-co2-emissions:** For example – since 1980, the UK and the US have reduced CO2 emission. The global growth in emissions is coming from developing economies.

Another example – In early days of growth, economies tend to burn coal/wood – which cause obvious pollution. But, with higher incomes, an economy can promote cleaner technology which limits this air pollution. However, in a paper "Economic growth and carrying capacity" by Kenneth Arrow et al. they caution about this simplistic u-shape. As the authors state:

"Where the environmental costs of economic activity are home by the poor, by future generation, or by other countries, the incentives to correct the problem are likely to be weak"

- It may be true there is a Kuznets curve for some types of visible pollutants, but it is less true of more diffuse and less visible pollutants. (like CO2)
- The U-shaped maybe true of pollutants, but not the stock of natural resources; economic growth does not reverse the trend to consume and reduce the quantity of non-renewable resources.
- Reducing pollution in one country may lead to the outsourcing of pollution to another, e.g. we import coal from developing economies, effectively exporting our rubbish for recycling and disposal elsewhere.
- Environmental policies tend to deal with pressing issues at hand but ignore future intergenerational problems.

Other models of a link between economic growth and environment

- Economic-growth-environement-models

This suggests that economic growth will damage the environment, and damage will itself start to act as a brake on growth and will force economies to deal with economic damage. In other words, the environment will force us to look after it. For example, if we run down natural resources, their price will rise and this will create an incentive to find alternatives.

- **New toxics**

This is more pessimistic suggesting that economic growth leads to an ever-increasing range of toxic output and problems, some issues may get solved, but they are outweighed by newer and more pressing problems which are difficult if impossible to overturn.

This model has no faith that the free-market will solve the problem because there is no ownership of air quality and many of the effects are piling up on future generations; these future effects cannot be dealt with by the current price mechanism.

- **Race to the bottom**

This suggests that in the early stages of economic growth, there is little concern about the environment and often countries undermined environmental standards to gain a competitive advantage – the incentive to free-ride on others' efforts. However, as the environment increasingly worsens, it will reluctantly force economies to reduce the worst effects of environmental damage. This will slow down environmental degradation but not reverse past trends.

Economic growth without environmental damage

- **Environmental-sustainability**

Some ecologists argue economic growth invariably leads to environmental damage. However, there are economists who argue that economic growth can be consistent with a stable environment and even improvement in the environmental impact. This will involve

A shift from non-renewables to renewables A recent report suggests that renewable energy is becoming cheaper than more damaging forms of energy production such as burning coal and in 2018 – this has led to a 39% drop in new construction starts from 2017, and an 84% drop since 2015.

- **Social cost pricing**

If economic growth causes external costs, economists state it is socially efficient to include the external cost in the price (e.g. carbon tax). If the tax equals the full external cost, it will lead to a socially efficient outcome and create a strong incentive to promote growth that minimises external costs.

Treat the environment as a public good. Environmental policy which protects the environment, through regulations, government ownership and limits on external costs can, in theory, enable economic growth to be based on protection of the environmental resource.

- **Technological development**

It is possible to replace cars running on petrol with cars running on electricity from renewable sources. This enables an increase in output, but also a reduction in the environmental impact. There are numerous possible technological developments which can enable greater efficiency, lower costs and less environmental damage.

Include quality of life and environmental indicators in economic statistics. Rather than targetting GDP, environmental economists argue we should target a wider range of living standards + living standards + environmental indicators. (e.g. Genuine Progress Indicators GPI).

KEY FINDINGS

Green growth is necessary

With cost of environmental degradation at US $80 billion annually, or equivalent to 5.7% of GDP in 2009, environment could become a major constraint in sustaining future economic growth. Further, it may be impossible or prohibitively expensive to clean up later.

Green growth is affordable

Model simulations suggest that policy interventions such as environmental taxes could potentially be used to yield positive net environmental and health benefits with minimal economic costs for India.

Green growth is desirable

For an environmentally sustainable future, India needs to value its natural resources, and ecosystem services to better inform policy and decision-making especially since India is a hotspot of unique biodiversity and ecosystems.

Green growth is measurable

Conventional measures of growth do not adequately capture the environmental costs, Therefore, it is imperative to calculate green Gross Domestic Product (green GDP) as an index of economic growth with the environmental consequences factored in.

A low-emission, resource-efficient greening of the economy should be possible at a very low cost in terms of GDP growth. A more aggressive low-emission strategy comes at a slightly higher price tag for the economy while delivering greater benefits

Emissions reduction would have a minimal impact on GDP which would be offset by savings through improving health while substantially reducing carbon emissions.

- A 10% particulate emission reduction will lower GDP only modestly. GDP will be about $46 billion lower in 2030 due to interventions, representing a loss of 0.3 % compared to business as usual.

- A 30% particulate emission on the other hand reduction will lower GDP by about $97 billion, or 0.7 %.
- GDP growth rate will be negligibly reduced by about 0.02 to 0.04% in both scenarios. There will be significant health benefits under both scenarios which will compensate for the projected GDP loss.
- The savings from reduced health damages will range from $105 billion in the 30% case and by $24 billion with a 10% reduction.
- Under the scenarios, another important benefit would be a substantial reduction in CO2 as a co-benefit which has a potential of being monetized.

CONCLUSION

Environmental sustainability could become the next major challenge as India surges along its projected growth trajectory. A low-emission, resource-efficient greening of the economy should be possible at a very low cost in terms of GDP growth. While a more aggressive low-emission strategy comes at a slightly higher price tag for the economy it promises to deliver greater benefits.For an environmentally sustainable future, India needs to value its natural resources, and ecosystem services to better inform policy and decision-making.

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