



Climate Change and Trade Policy Implications in India

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Abstract

Climate change is real and already taking place, according to the IPCC's most recent Assessment Report (IPCC IV 2007). According to the report, the impacts of climate change and their associated costs will fall disproportionately on developing countries threatening to undermine achievement of the Millennium Development Goals, reduce poverty, and safeguard food security. A Major component of development assistance is support for the agriculture sector since agricultural production worldwide is increasingly under pressure to meet the demands of rising populations. At the same time, there is concern also about the contributions that the agriculture sector makes to greenhouse gas emissions and climate change. This Paper briefly summarizes the climate change causes, Trends in output, openness, and emissions GHG Emissions in India, Do emissions increase when countries trade more?, Conclusion respectively

Keywords: Climate change, trade implications, Trade policy, Green house

Introduction

Climate change is any significant long-term change in the expected patterns of average weather of region (or the whole Earth) over a significant period of time. It is about non-normal variations to the climate, and the effects of these variations on other parts of the Earth. These changes may take tens, hundreds or perhaps millions of year. But increased in anthropogenic activities such as industrialization, urbanization, deforestation, agriculture, change in land use pattern etc. leads to emission of green house gases due to which the rate of climate change is much faster. Climate change scenarios include higher temperatures, changes in precipitation, and higher atmospheric

CO₂ concentrations. There are three ways in which the Greenhouse Effect may be important for agriculture. First, increased atmospheric CO₂ concentrations can have a direct effect on the growth rate of crop plants and weeds. Secondly, CO₂ -induced changes of climate may alter levels of temperature, rainfall and sunshine that can influence plant and animal productivity. Finally, rises in sea level may lead to loss of farmland by inundation and increasing salinity of groundwater in coastal areas.

The greenhouse effect is a natural process that plays a major part in shaping the earth's climate. It produces the relatively warm and hospitable environment near the earth's surface where humans and other life-forms have been able to develop and prosper. However, the increased level of greenhouse gases (GHGs) (carbon dioxide (CO₂), water vapor (H₂O), methane (CH₄), nitrous oxide (N₂O), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), and sulfur hexafluoride (SF₆) etc) due to anthropogenic activities has contributed to an overall increase of the earth's temperature, leading to a global warming.

The Impact of Trade on Climate

There has been a rapid expansion of international trade and deepened trade liberalization among countries within the last few decades. The volume of world trade is nearly 32 times greater than the 1950 level. The ratio of merchandise trade to gross domestic product (GDP) has increased from less than 20 percent to more than 50 percent in less than half a century (figure 1). This was partly facilitated by reductions in average world tariffs at major export destinations; that is, tariffs were reduced from 18 percent in Europe and 15 percent in North America in the late 1950s to about 4 percent in North Atlantic countries by the end of the 20th century (Baldwin 2006). In parallel, there has been a drastic increase in the carbon-di-oxide (CO₂) concentrations in the atmosphere, from about 310 ppm (parts per million) in the 1950s to about 390 ppm by the end of the century (World Bank 2010). The simultaneous expansion of trade, greater trade liberalization and higher pollution intensities, therefore, raise questions about the climate impacts of trade and trade liberalization

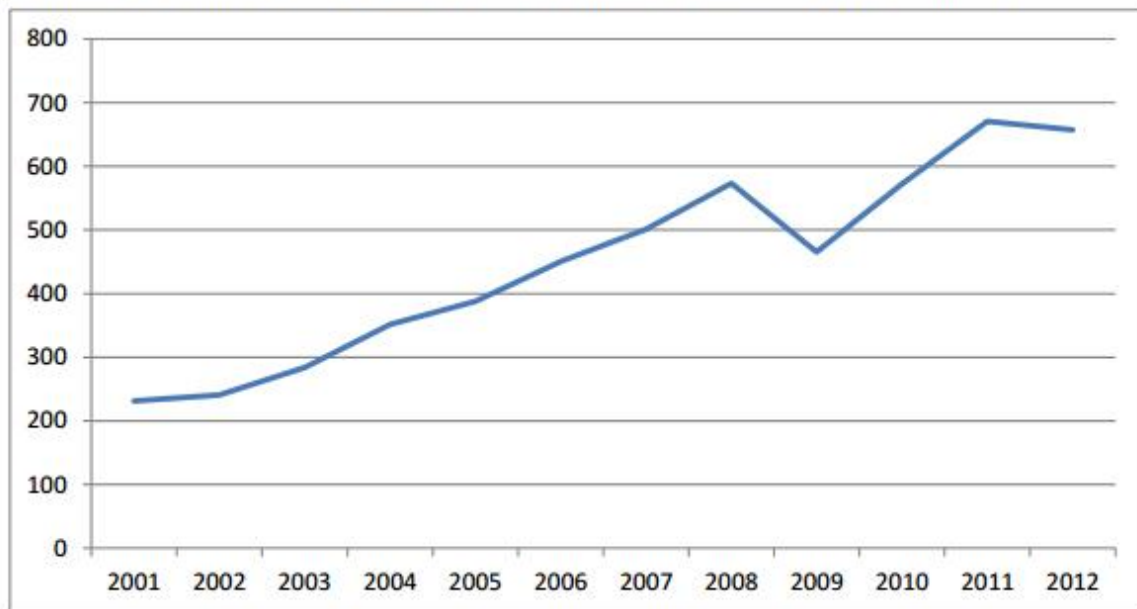
Trends in output, openness, and emissions



Source: World Development Indicators Database.

GHG Emissions in India

During the year 2002 our country was observed to be the sixth largest per capita emitter of CO₂ in the world the other 5 large emitters being U.S.A, Russia, Japan, European Union (EU) nations and China. But quantitatively, our country emitted 20 times less CO₂ than that of USA. It has been recorded that India emitted 908 m.t of CO₂ in 1998 (which as that time was 4 percent of the world's total). The per capita emissions of CO₂ were 0.93mt. Per annum. It was well below the world average of 3.8mt per annum. But as compared to 2 percent world average the present rate of growth of GHG emissions in India annually is at 4.6 per cent

Figure 2: Global exports of environmental goods 2001-2012 (US\$ billion)

Source: ITC Trade Map, Using OECD Classification of Environmental Goods.

Do emissions increase when countries trade more?

Emissions of greenhouse gases do not necessarily rise when countries trade more. Trade theory suggests that a marginal change in trade affects the emission level through three major channels: the scale effect, the composition effect, and the technique effect (see Grossman and Krueger 1992 and Copeland and Taylor 2003 for a detailed analysis).

The scale effect refers to an increase in emissions due to a higher level of economic activity, holding other factors constant. Therefore, the sign of the scale effect is generally positive. The composition effect refers to a change in emissions because of a change in the relative shares of different goods in production. If the exported good is relatively greenhouse-gas intensive, then the overall emissions will increase with trade liberalization. With a comparative advantage in 'clean' industries, however, trade liberalization will cause a reduction in emissions. Finally, the technique effect refers to the impact on emissions due to a change in production methods. Trade can reduce emissions per unit of output by facilitating the transfer of cleaner technologies or by inducing changes in regulations as demand for environmental quality will increase with income.

The net change in aggregate emissions is determined by the interaction of these three effects. For instance, in the case of sulfur dioxide (SO₂), Atelier et al. (2001) report that a 1% increase in the economic activity due to trade liberalization raises emission by 0.25 to 0.5% through the scale effect for an average country, whereas it is driven down by 1.25 to 1.5% by the technique effect. The composition effect is found to be country specific and insignificant.

Figure 2 shows that openness is positively correlated with aggregate emissions, per-capita GDP, industry-share of the economy, and emission intensity per unit of energy use. Note that, however, cross-country comparisons using this decomposition methodology do not necessarily reflect the causality between openness and emissions unless country-specific factors are accounted for.

Trade policy for climate change mitigation

Current multilateral efforts to reduce greenhouse-gas emissions are considered ineffective because of insufficient participation and lack of enforcement (Barrett 2008). Trade policy is, therefore, suggested as a mechanism to facilitate compliance and participation by serving four purposes under a global climate regime (De Melo and Mathys 2010):

1. Address leakage and competitiveness issues;
2. generate sanctions against nonparticipation and noncompliance;
3. help separate the abatement location and the bearer of the cost of abatement; and,
4. Maintain a free-trade regime that is crucial for technology transfers.

Implications

There is no conclusive evidence to suggest a loss in competitiveness from climate change measures adopted in OECD countries or of leakage or an exodus of carbon/ energy intensive industries to developing countries. Developed countries have implemented various policies and measures to achieve their targets and showed some progress in mitigating climate change. However, in a number of cases economic considerations far outweighed climate considerations. Many of the incentives, especially for energy-intensive industries to reduce their emissions, have been nullified through special tax concessions, rebates, exemptions, and other such measures.

However, in the medium-to-long run, the increasingly stringent climate policies in some industrial countries and increased economic growth in some developing countries could accentuate the existing trends. The increased concentration of energy-intensive sectors in some developing countries, such as China and India, could signal not only for their greater future involvement in any global post-Kyoto scheme, but could also subject them to punitive trade sanctions for not participating in global efforts to address climate change.

While the implementation of the Kyoto Protocol may have brought to light some inherent conflicts between economic growth and environmental protection, the objectives of Kyoto also provide an opportunity for aligning development and energy policies in such a way that they could stimulate production, trade, and investment in cleaner technology options. Similarly, the WTO negotiations on environmental goods and services could potentially be used as a vehicle for broadening trade in cleaner technology options and thereby help developing countries to reduce their greenhouse gas emissions and adapt to climate change.

Conclusion

In the post-2015 development framework, the relationship between climate change and trade policies should change to a more positive one, in which climate change policies with economic and trade aspects and trade policies with environmental and climate change aspects are considered, regulated and implemented as mutually supportive in achieving sustainable development and poverty eradication in the post-2015 period. UNCTAD can make a contribution, consistent with its mandate in the interrelated areas of trade and sustainable development, in support of UNFCCC and its various bodies (such as the Subsidiary Body for Implementation) in addressing economic and trade issues arising from a potential new climate change agreement

It presents conclusions on the impact of trade liberalization on climate change, risks and opportunities of carbon-related competition measures, the consistency of climate-related processes and production measures with WTO rules, the discussion surrounding the reduction of tariffs on mitigation and adaptation technologies and the role of intellectual property in the climate field. Particular attention is given to issues relevant to developing countries, because they fear that patents will be an obstacle to the transfer of climate technologies, while many

industrialized countries and some business associations maintain that intellectual property rights are a pre-condition for investments in foreign market.

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