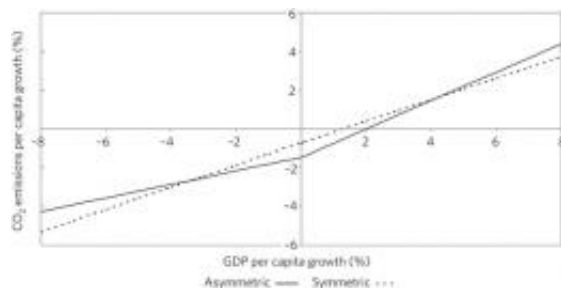


Environmentalist finds CO₂ rises faster in good times than it falls in bad

October 8 2012, by Bob Yirka



Estimated effect of annual growth in GDP per capita on growth in CO₂ emissions per capita. Credit: (c) *Nature Climate Change* (2012)
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(Phys.org)—Richard York, a researcher with the Department of Sociology and Environmental Studies Program at the University of Oregon, has found that a measured reduction in CO₂ emissions during economic downturns is not on par with the increase in CO₂ emissions that is apparent during boon times. York made this discovery after analyzing the Gross Domestic Product (GDP) of several nations during the period 1960 to 2008, and then comparing these values with the countries' corresponding annual measures of CO₂ emissions. The results are published in the journal *Nature Climate Change*.

Conventional thinking held that [greenhouse gas emissions](#) will tumble at the same rate as they rise depending on economic conditions. York wasn't convinced: accordingly, he decided to study the ups and downs of

the economies of 150 of the world's major countries over the course of nearly a half century. He then compared each country's GDP and carbon emission measures over time. What he found was that, on average, CO₂ emissions rose by 0.73 percent for every 1 percent rise in GDP during economically prosperous times, but fell just 0.43 percent for every 1 percent fall in GDP during economically depressed periods, indicating that greenhouse gasses fall at roughly half the rate that they rise.

York has a theory regarding this observed phenomenon— CO₂ [emission levels](#) are partly based on a country's economic and infrastructure history. If a country builds factories, cars and roads during strong [economic times](#), this infrastructure and machinery will still be there when the economy experiences a dip. And, while the new assets may be used less during difficult times, there is very little chance they won't be used at all. Therefore, [carbon emissions](#), while somewhat decreased, will never return to their pre-development levels.

York's findings are likely to dampen one of the few bright spots surrounding the economic malaise currently impacting many countries, particularly Europe. The hope—that slow economic growth was decreasing the amount of CO₂ being added to the atmosphere, thereby minimizing global warming, and as some have suggested, weather volatility—may be little more than wishful thinking.

York concludes by suggesting that, based on his results, governments worldwide will likely need to rethink their predictions regarding CO₂ emissions. This might be particularly true for those countries that set their goals based on assumptions made at the 2009 Copenhagen summit, which focused on nations working together to combat the problems of greenhouse gas emissions and global warming, and which was organized around conventional theories of CO₂ emissions in developed and developing nations.

More information: Asymmetric effects of economic growth and decline on CO₂ emissions, *Nature Climate Change* (2012)
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