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02/22/20

Economic Growth Essay Macroeconomics

How Economic Growth has Contributed to Increases in Carbon Dioxide Emissions

When the industrial revolution came about in 1760, a surge in production occurred. This was due to the dependence of the revolution on fossil fuels for energy. These were often coal and oil which are harvested from the core of the earth, and were utilized in production by being burned for energy which helped to operate the machinery that aided in mass production. The exhaust of these materials are released into the environment from being burned in the form of carbon dioxide emissions. With the expansion of production, more energy needs to be obtained to sustain the machinery involved in production, and these are most commonly in the form of fossil fuels. The industrial revolution directly relates to a surge in economic growth, but the downside of this is that the utilization of fossil fuels has led to increasing CO2 emissions. This is referred to as the aggregate production function, which explains how the cycle of increased production leads to increased CO2 emissions and how the cycle grows and is sustained over time. Overtime, excess production of food, new technologies and more have surpassed population growth and copious amounts of CO2 emissions have been released into the environment and this brings us to today's issue: tackling global warming which has been brought on by excessive CO2 emissions warming the earth.

As mentioned, excess carbon emissions in the air leads to global warming, but why is this important? Continuing to emit high levels of CO2 emissions only speeds up the process of global warming, as the CO2 is trapped within our atmosphere and this leads to a "blanket effect" which increases the pace of global warming. Negative externalities arise from this, meaning third parties who aren't involved in producing or consuming the commodity are facing the effects. The commodity in this case is emitting greenhouse gases, and the effects of this are being felt by third parties. Another aspect of negative externalities is that those who produce this commodity don't pay for it in the total cost of production. Hence, a dilemma is created where there is lack of incentive for those endorsing the issue to stop, and for those not directly causing the problem to do anything to help. Global warming leads to environmental effects such as warm climates which directly affect agriculture, a necessity for many. This may not lead to drastic changes in the Western world, however "the poorest do not benefit from the current low-productivity agriculture nor from landslides resulting from deforestation. They do not benefit from inefficient cities where daily commutes often take hours a day, exposed to highly-polluted air," (UNLOCKING). Listing only a few examples of the drastic impacts of climate change that stem from economic growth and the utilization of fossil fuels that release CO2 in the air, it is clear that something needs to be done to prevent these effects from worsening.

Air is a free good meaning it is free for anyone to use without paying a tax to purchase it. One person's consumption of air does not have an effect on someone's else's consumption. For these reasons, the free rider problem exists. This problem addresses the likelihood of action people are willing to take in order to address this problem: people become less likely to take action because the positive effects from one's efforts will not directly benefit them. Thus, there is

a lack of incentive for people to want to do their part in helping to reduce fossil fuels, despite publicly known negative externalities. In turn, this leads to a tendency for people to resist taking action unless everyone else does so too, and this is known as the collective action problem. The appraisal for everyone to take action is highly unlikely if not impossible, henceforth this problem reaches a crossroads where individuals don't often pursue a conscious effort to help reduce fossil fuels. Resulting from these problems are negative externalities, which exist when economic pressure has negative effects on people who are not involved in the production or consumption of the commodity. In this case, a negative externality would be further emitting fossil fuels rather than reducing them and emitting more CO2 emissions through the burning of fossil fuels, and these would be faced by third parties. Third parties face the brunt of the negative effects of the transaction and production processes which release CO2 emission, and have to "pay" for a cost for which they are not compensated. For instance, "IMF's [International Monetary Fund] analysis of the damages caused by fossil fuels shows that coal has the largest negative impact on human health, yet coal's use is pervasively undercharged in energy taxation and carbon-pricing systems," (UNLOCKING). This excerpt demonstrates that coal, a commonly used fossil fuel that contributes copious amounts of CO2 emissions, does indeed have an impact on human health, in which the third parties are facing. When all is taken into account, the free rider problem doesn't give people an incentive to help unless collective action is taken and third parties are forced to experience the negative externalities of transaction and production processes. Accordingly, my stance on global warming is pessimistic due to the fact that global warming is still very prevalent but lacks simplicity in regards to combating it on an individual level.

As indicated through the many problems that arise when trying to promote individuals to make a change and help reduce fossil fuels usage and CO2 emissions, this is a difficult task. However, I propose a strategy to make positive strides in reducing global warming, being a cap-and-trade.

Cap-and-trade is a strategy that assigns the amount of CO2 emissions reductions as determined by the market. A price ceiling is put in place within this system which prevents a rise in the price per ton for carbon emissions. This strategy, "sets the allowable quantity of emissions, which can then be used to estimate the decline in the rise of global temperature and the resulting benefits," (Frank). I promote a cap-and-trade over a carbon tax because the price ceiling allows for a maximum amount of carbon emissions, thus preventing the likely scenario that may occur under a carbon tax: wealthier industries pay more money and continue releasing detrimental amounts of carbon emissions. Some may argue cap-and-trade's limitation on the amount of carbon emissions will cause a decline in jobs related to fossil fuel extraction and production, and affect economic growth, however this is not true. Positive benefits of economic growth can actually come from a reduction in the fossil fuel production business. If this production recedes, other sources of energy production, more sustainable ones at that, such as natural gas, will increase in productivity and lead to economic growth.

The free rider problem and the presence of negative externalities makes it difficult to design the appropriate global policies to limit greenhouse gases. This is because people on the individual level aren't inclined to make strides towards positive change because they face negative externalities whether they make an effort or not, and their positive efforts won't directly benefit them so it's very difficult to incline individuals to embed positive changes in their lives to

limit greenhouse gases. Industries on the other hand, and those extracting fossil fuels, emitting carbon, and contributing to global warming could be persuaded to switch to more sustainable energy sources with the implication of a cap-and-trade.

Despite plausible options such as cap-and-trade, I am pessimistic about our ability to deal with global warming. This stems from a variety of reasons such as the free rider and collective actions problems that demonstrate the difficulty in individuals taking action to deal with global warming, and the time commitment issue. This issue I am referring to regards the time it would take to reap the benefits of dealing with global warming: if the current generation was to deal with global warming in positive ways now, it would benefit the next generation instead of the present one. In today's day and age where people are used to immediate gratification, there's a lack of appeal to parktake in action that won't benefit you directly or immediately.

In a world with strong voices and advocates for dealing with global warming such as Greta Thumberg, you would think people would be further willing to partake in the movement. Due to negative externalities, free rider and collective action problems, individuals are not highly likely to take action to reduce the effects of global warming. This is why I argue the only option for dealing with global warming is to take steps that directly affect the producers of greenhouse gasses to pay for the emissions of those gases, such as the cap-and-trade strategy.

Works Cited

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