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Research Article

Redefining GDP: Integrating Carbon Pricing in National Income Accounting

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Abstract

Gross Domestic Product (GDP) has long been a key metric for assessing economic activity but falls short as a measure of social welfare and sustainability. It overlooks unpaid labor, informal sectors, and environmental costs like deforestation and carbon emissions. For instance, while India's informal sector contributes significantly to GDP, much remains unaccounted for. Moreover, global GDP growth has historically correlated with rising CO_2 emissions. This paper advocates for integrating carbon pricing into GDP calculations, assigning costs to environmental degradation and incentivizing sustainable practices. By redefining progress, nations can align economic growth with social equity and environmental sustainability, fostering holistic development.

Keywords: GDP growth, CO_2 emissions, Carbon pricing, National income accounting

1. Introduction

Gross Domestic Product (GDP) emerged as a defining metric in the post-world war global economy to gauge the level of economic activities in an economy. The concept of GDP has gained popularity not only among the economists but also to policy makers & common public. GDP growth rates are often considered as a tool to evaluate economic performances and holds an important role in the political landscape. Thinking beyond GDP gains importance for the very particular reason that, it's being used by the policy makers across the world as a measure of welfare, to set targets on GDP growth rates & frame policies. Policy makers often overlook or underestimate the drawbacks associated with GDP computation.

Nevertheless, GDP as a statistical measure does a great job to measure the overall economic activities happening in an economy but often government bodies, think tanks & media use (or claim) GDP as a proxy for social welfare. While GDP is an important economic indicator, it doesn't necessarily capture all aspects of a nation's quality of life or well being. A new measure of progress including the angles of environmental sustainability, social progress into the realm and measures of individual well-being are crucial for a comprehensive understanding of a nation's progress.

2. Discussion

GDP comes with serious limitations as a proxy indicator for social welfare. The national income accounting often fails to capture/impute the value to the unpaid household work

especially to the disproportionate share of unpaid work done by women in the developing & least developed countries (LDCs). The informal economy which exists largely in the developing & LDCs largely remain out of the gambit of GDP accounting. For example, in India the share of informal unorganised sector is more more than 50% of the GDP and employs 83% of the workforce. The externalities caused by the economic activities are left unaddressed in the current national accounting systems. While a tree in the forest doesn't directly contribute to national income, furniture production does. However, when a tree is cut down, it not only reduces the oxygen levels locally but also has global implications. Whether deforestation occurs in India or China, the consequences affect all of humanity.

The world is increasingly recognizing the limitations of GDP as a measure of progress, given its neglect of socio-environmental considerations. For instance, mining and quarrying activities, which contribute approximately 2% to India's GDP, often pose significant environmental and social challenges [1]. However, if the primary focus is on GDP growth, there may be a drive to increase the value adding economic activities, potentially exacerbating these challenges. This issue is not inherent to GDP itself, but rather stems from the failure to incorporate socio-environmental factors into the target variable. By integrating these considerations, we can refine our measures of progress and ensure a more holistic approach to policymaking. This would help in aligning economic growth with sustainable development goals.

Figure 1: World GDP Growth between since 1961 to 2022 (Source: World Bank)

The 1990s saw the highest global economic growth, driven by increased globalization, external trade, and high growth rates across most regions. This period also witnessed a reorientation of the global value chain due to comparative advantages in trade. However, this rise in economic activity led to an increase in CO_2 emissions. From the 1960s to 2022, the average rate of economic growth was 3.48%, while annual CO_2 emissions from the fossil fuel industry tripled to 35 billion tonnes of CO_2. Given the growing impact of climate change, it's crucial to decouple economic progress from CO_2 emissions. This means finding ways to grow the economy without increasing our carbon footprint at the same time accounting the externalities in the national income accounting as well.

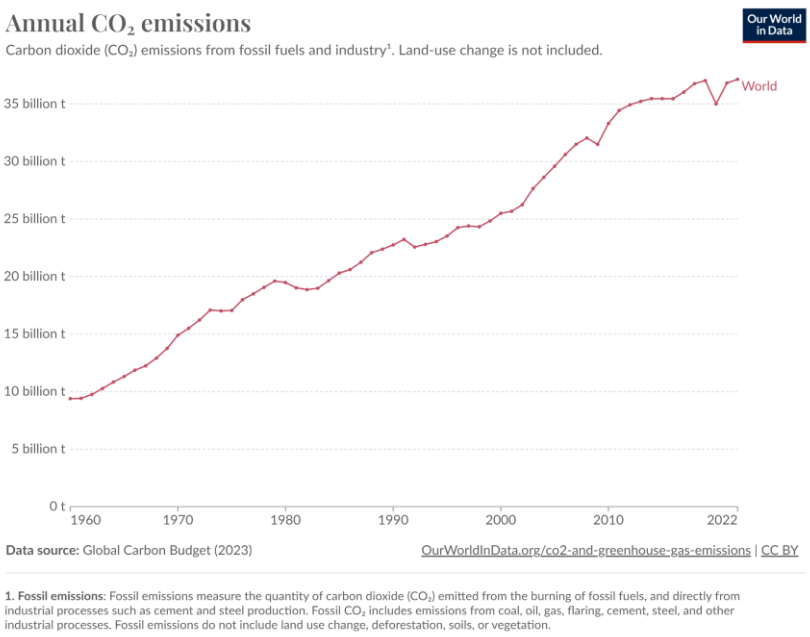

Figure 2: Annual CO_2 emissions (Source: Our World in Data)

To tackle the challenges posed by climate change, nations must adopt carbon accounting, publishing detailed figures and progress reports akin to GDP. This necessitates an update to national accounting methods, incorporating the implicit price of carbon associated with each sector. Globally, countries are increasingly adopting carbon markets and carbon taxes to reduce CO_2 emissions by pricing carbon-emitting industries. This approach can be extended to account for a country's CO_2 emissions.

3. Conclusion

The current GDP definition, which includes Consumption, Investment, Government Expenditure, and Net Exports, could be modified to accommodate the price of carbon for each sectoral activity. This would allow for the deduction of the carbon price from current GDP figures, accounting for the greenhouse gas emissions for a particular year. Let’s revisit our tree example. In the current national accounting framework, if a tree is cut down and transformed into furniture, it results in an increase in GDP. However, if we assign a carbon price based on the cost benefit analysis of the environmental impact of cutting down the tree, the focus shifts from increasing GDP to reducing emissions. In this revised scenario, the economic value of the tree is not just the furniture it can produce, but also the environmental cost of its removal. This approach encourages sustainable practices by making it economically beneficial for countries to reduce emissions rather than solely aiming for GDP growth.

In conclusion, our traditional measure of economic success, GDP, is no longer sufficient in a world grappling with the effects of climate change. The need to incorporate carbon pricing into national income accounting is not just an innovative idea, but a necessary shift. This approach acknowledges the environmental cost of economic activities, encouraging nations to prioritize sustainability alongside growth. By integrating the price of carbon into our economic measures, we can create a more comprehensive and accurate picture of a nation’s true progress.

As we move forward, let's redefine prosperity - because a prosperous economy should also be a sustainable one.

References

1. Murthy, S. V. R. (2019). Measuring Informal Economy in India: Indian Experience. Retrieved from https://www.imf.org/-/media/Files/Conferences/2019/7th-statistics-forum/session-ii-murthy.ashx
2. Stjepanović S, Daniel T, and Marinko Š. Policy lessons from green gdp convergence over five decades: Enhancing sustainability and economic outcomes. *Journal of Policy Modeling* (2024).
3. Qi S., Huang Z., & Ji L. Sustainable development based on green GDP accounting and Cloud Computing: A case study of Zhejiang Province. *Scientific Programming* (2021) 1–8.
4. Prakash A, Sarkar K K, and Amit K. Estimation of Green GDP for India. (2022).