

2023 ICM Problem F: Green GDP



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Background

Gross Domestic Product (GDP) is arguably one of the most well-known and commonly used measures of the health of a nation's economy. It is often used in determining the purchasing power and access to loans for a country, providing motivation for nations to propose policies and projects that boost their GDPs. GDP “measures the monetary value of final goods and services produced in a country in a given time period; it counts all of the output generated within the borders of a country.”^[1] This approach to calculating such an important and often quoted measure favors production today without any consideration about conserving resources for tomorrow. For example, a nation with rich forests could boost its current GDP by clear-cutting the trees and producing large amounts of wooden furniture. This nation could do so without penalty despite the loss of biodiversity and other negative environmental consequences. Similarly, a nation can boost its GDP by harvesting more fish now, without penalty for potentially irreversible harm to the fish stocks.

Because GDP fails to give credit for natural resources, perhaps it is not a good measure of the true economic health of a nation. If nations change the ways they evaluate and compare their economies, national governments may change their behaviors, promoting policies and projects that are better for the environmental health of the planet. Could a “Green” GDP (GGDP), where “Green” refers to the inclusion of environmental and sustainability perspectives and factors, be a better measure than the current conventional GDP?

Multilateral changes are extremely challenging. Convincing nations to agree to this new GGDP over the conventional GDP as the primary measure of economic health would likely be very difficult. However, if making the shift initiates a global movement of national climate efforts that makes significant progress towards climate crisis mitigation, then perhaps it is worth the fight.

Requirement

Your task is to consider the world recognizing GGDP as the primary measure of the health of a nation's economy. What changes should we expect? What would the environmental impact of those changes be? Specifically, your team should:

- There are many proposed ways to calculate GGDP that have already been developed. Select one that your team believes could have a measurable impact on climate mitigation if it replaced GDP as the primary measure of economic health.

- Make a simple model that is easily defensible to estimate the expected global impact on climate mitigation if your selected GGDP is adopted as the primary measure of the economic health of a nation. It is up to you to decide how to measure global impact.
- Replacing GDP with GGDP could be met with resistance. Determine if your model indicates that the switch is worthwhile at a global scale, comparing both the potential upside of climate mitigation impact and the potential downside of the effort required to replace the status quo. Explain your reasoning and support your answer with your previous global impact analysis.
- Select a country and provide a more in-depth analysis of how this shift might impact them. For example, what specific changes would you expect in how they use or save their natural resources between now (under the current GDP) and after the GGDP is adopted? Would those changes be beneficial to this specific country, considering both their current economic status and their ability to support future generations? Be sure that your analysis is explicitly tied to the changes between how GDP and GGDP are calculated.
- Based on your country-specific analysis, write a one-page non-technical report to the leaders of that country on whether to support a switch to GGDP or to reject a switch and maintain GDP as the primary measure of national economic health.

Your PDF solution of no more than 25 total pages should include:

- One-page Summary Sheet that clearly describes your approach to the problem and your most important conclusions from your analysis in the context of the problem.
- Table of Contents.
- One-page non-technical report.
- Your complete solution.
- Reference List.

Note: The ICM Contest has a 25-page limit. All aspects of your submission count toward the 25-page limit (Summary Sheet, Table of Contents, Non-technical Report, Solution, Reference List, and any Appendices). You must cite the sources for your ideas, images, and any other materials used in your report.

Glossary

Multilateral: Having contributors, supporters, or participants from several groups, especially several different nations.

References

[1] Callan, T. (2023). *Gross Domestic Product: An Economy's All*. International Monetary Fund, Economics Concepts Explained.