

中文赛题 F: 绿色 GDP

背景

国内生产总值 (Gross Domestic Product, GDP) 可能是最为人熟知和常用的国家经济健康度量标准之一。它经常被用于确定一个国家的购买力和贷款能力，促使国家提出促进 GDP 增长的政策和项目。GDP “衡量在一定时间内一个国家生产的最终产品和服务的货币价值; 它计算的是一个国家领土内所有生产的总量。”[1] 这种计算如此重要且常被引用的方法，偏向于今天的生产而不考虑明天保护资源的问题。例如，一个有丰富森林的国家可以通过伐木并生产大量木制家具来提高当前的 GDP，而不受到任何惩罚，尽管这样做会导致生物多样性的丧失和其他负面环境影响。同样，一个国家可以通过现在捕捞更多的鱼来提高其 GDP，而不会受到对鱼类资源造成不可逆转伤害的处罚。

由于 GDP 未能为自然资源做出贡献，它可能不是一个国家真正的经济健康度量标准。如果各国改变评估和比较其经济的方式，国家政府可能会改变其行为，促进对地球环境健康更好的政策和项目。“绿色”GDP (Green GDP, GGDP)，其中“绿色”指包含环境和可持续性观点和因素，可能比当前传统 GDP 更好地衡量一个国家的经济健康状况吗？

多边变革极具挑战性。说服各国同意将这种新的 GGDP 作为国家经济健康的主要衡量标准，可能非常困难。然而，如果这种转变发起了一个全球性的国家气候行动运动，这些运动取得了对应于缓解气候危机的重大进展，那么这个努力就值得进行。

要求

你的任务是考虑世界承认 GGDP 作为国家经济健康的主要衡量标准。我们应该期待哪些变化？这些变化的环境影响是什么？具体而言，你的团队应该：

- 有许多提议的方法可以计算已经开发出来的GGDP。选择一个你的团队认为如果它取代 GDP成为经济健康的主要衡量标准，它可能对气候减缓产生可衡量的影响。
- 制作一个简单的模型，该模型易于捍卫，以估计如果采用您选择的GGDP作为一个国家经济健康的主要衡量标准，对气候减缓的全球影响的预期。由您决定如何衡量全球影响。
- 用GGDP替代GDP可能会遭遇抵抗。根据您的模型，确定是否值得在全球范围内进行转换，比较气候减缓影响的潜在上行和替换现状所需努力的潜在下行。解释您的推理并用您以前的全球影响分析支持您的答案。
- 选择一个国家，并提供更深入的分析，说明这种转变可能会对它们产生什么影响。例如，你预期他们在使用或节约自然资源方面会出现什么具体变化（在当前的GDP下和在采用GGDP之后）。考虑到该国的当前经济状况和支持未来几代人的能力，这化是否



关注数学模型
获取更多资讯

对这个特定的国家有益。请确保你的分析明确地与GDP和GGDP计算方式之间的变化联系起来。

- 基于你的特定于国家的分析，给该国的领导写一份一页的非技术报告，说明是否支持转换为GGDP或拒绝转换并将GDP保持为国家经济健康的主要衡量标准。

你的PDF解决方案总页数不超过25页，应包括：

- 一页摘要，清楚地描述你解决问题的方法和你在问题背景下分析的最重要结论。
- 目录。
- 一页非技术报告。
- 你的完整解决方案。
- 参考文献列表。

注：ICM竞赛有25页限制。你的所有提交方面都计入25页限制（摘要、目录、非技术报告、解决方案、参考文献列表和任何附录）。你必须引用你报告中使用的思想、图片和其他材料的来源。

术语表

多边的：有几个组织、支持者或参与者的，尤其是几个不同的国家的。

Problem F: Green GDP

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.



关注数学模型

获取更多资讯

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 defendable 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.



关注数学模型

获取更多资讯

- 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.



关注数学模型

获取更多资讯