

## **Green Domestic Product: Netting Greenhouse Gas Emissions from Gross Domestic Product**

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### Summary

The Gross Domestic Product (GDP) is rightly criticized for not being an accurate measure of economic value added since it does not account for the environmental damages caused by the underlying economic activity.

In this paper, we propose a simple adjusted measure of domestic product which subtracts the monetary value of Greenhouse Gas (GHG) emissions from GDP to obtain a measure of Green Domestic Product (GrDP).

We provide the calculations for Switzerland from 1990 to 2018, a period during which a significant increase in GDP of approximately 60% was compatible with a slight decrease in GHG emissions. This is a noticeable form of decoupling between economic growth and GHG emissions.

Assuming a Social Cost of Carbon (SCC) of CHF 96 per ton, we find that GrDP is between 0.62% and 1.5% lower than GDP in 2018 depending on the methodology used for measuring GHG emissions. During the studied period, the growth rate of GrDP was marginally larger than the GDP growth rate.

Our sectoral analysis highlights the low and decreasing carbon efficiency of the primary sector. It also suggests that the decoupling between economic growth and GHG emissions is entirely attributable to the increasing relative importance of the significantly more carbon-efficient tertiary sector.

From a policy point of view, while the identified decrease in GHG emissions provides a ray of hope, current trends do not appear in line with Switzerland's commitments to the Paris agreement. More forceful policies and an increased awareness leading to changes in behaviors, notably in regard to individual mobility (land and air transportation) are needed.

Our calculations provide a very partial estimate of the economic cost of environmental damages arising from economic activity based on a static backward-looking national income accounting approach. The cost of other forms of pollutions and of lost biodiversity is not accounted for.

More complex forward-looking models are needed to make predictions about the path of GHG emissions under alternative policies and their potential cost in terms of foregone economic growth.

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