

A SNA Framework to Capture Growth in the Services of Natural Resources

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Natural resources are everywhere, and reported wellbeing is highly correlated with the quantity and quality of natural resource services like weather and biodiversity (Levinson 2012) (MacKerron and Mourato 2013) (Methorst et al. 2021). Yet, natural resources are currently classified as non-produced assets (U.N. Statistics Division sec. 10.14), and therefore natural resource services cannot be attributed to either labor inputs now or capital investment in the past. For those used to thinking about consumption growth as a consequence of labor growth or capital investment growth, this raises immediate concern that natural resource service growth is unmeasured within the standard gross domestic product (GDP) framework. Furthermore, this concern has evolved into arguments that GDP growth is a fundamentally flawed measure of wellbeing growth (Stiglitz et al. 2009).

This paper proposes a framework where natural resource service growth is attributed to new exploration investment and therefore can be measured within the standard GDP framework. For example, a utility might start out with a non-produced watershed and then increase the watershed's value by searching for the aquifer with the cleanest water. To be clear, the framework proposed to track exploration is not completely original to this paper. Rather, it is an adaptation of the framework currently used to track mineral exploration (U.N. Statistics Division sec. 10.106-108). Tracking exploration raises measured investment in every year studied and raises real asset growth by 0.10 percentage point per year between 1929 and 2019. The relative increase to measured investment is larger in earlier periods, and therefore real GDP growth falls by 0.01 percentage point per year between 1929 and 2019 and for-profit business productivity growths falls by 0.02 percentage point per year between 1948 and 2019. The paper also shows that tracking exploration does not change consumption growth rates noticeably. Taken together, these empirical results suggest that broadening the scope of GDP to include natural resource exploration and natural resource services would not fundamentally change historical growth rates.