Chapter 3: Comment on "Tracing sustainability in the long run: Genuine Savings estimates 1850 – 2018" by Eoin McLaughlin, Cristiano Ducoing, and Les Oxley

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Measuring the sustainability of economic development has long been a concern for economists,[1] with two key indicators emerging as leading metrics: Comprehensive/Inclusive wealth (CW/IW) and Genuine/Adjusted Net Savings (GS/ANS). CW/IW measures the value of an economy's asset base, including produced, human, and natural capital as well as net foreign assets, which reflect the future consumption, and wellbeing possibilities of a given nation. By measuring changes in wealth per capita over time, it provides policy makers with an important signal of how these future opportunities are changing. GNS/ANS is instead measuring how much an economy is, on balance, investing for the future by tracking net savings. Both metrics capture how assets are changing over time in positive (quality improvements and accumulation) and negative (depreciation and depletion) ways.

McLaughlin et al. (2023) make a substantial contribution to this literature by producing historical GS estimates for a large group of developed and developing countries drawing on the ANS methodology developed by the World Bank (Hamilton and Clemens, 1999). These GS estimates account for both the depletion of nonrenewable and renewable natural capital, the accumulation of human capital, technological progress, and greenhouse gas emission. Their results show that countries experience declines GS despite a growth in income (as measured by Gross Domestic Product/GDP). These historical estimates can help us to trace the main trends in long run sustainability and provide important insights for future development policy. For example, natural resource rich countries have often based their economic development on the exploitation of their natural wealth. However, this will only be sustainable if net savings (as measured by GS/ANS) are not negative.

However, while in economic theory investment net of depreciation and depletion equals changes in wealth, in practice there are several factors that affect national wealth estimates that are omitted from GS/ANS calculations due to data limitations (World Bank, 2021; Atkins and Venmans, 2023). Data availability affects which assets can be included in the calculation in the first place, which is especially limiting when constructing a historical time series. For example, the World Bank's CW metric accounts for changes in the asset value of timber, agricultural land, marine fish stocks and several ecosystem services, while McLauglin et al. (2023) can only account for net forest depletion. It is of course possible to address some of these concerns especially with more recent data, but care needs to be taken to ensure that any changes in CW correspond to (net) depletion or degradation of natural capital and ecosystem assets (Atkins and Venmans, 2023).

Moreover, there are differences in measurement approaches for key assets, such human and nonrenewable natural capital. For example, computations of GS/ANS typically use public expenditure in education as a proxy for human capital (following a cost-based approach) instead of the lifetime income or benefits-based approach used for CW. One key concern with such expenditure measures is that they only capture costs partially (UNECE, 2016). That is, only direct expenditure on education and training by

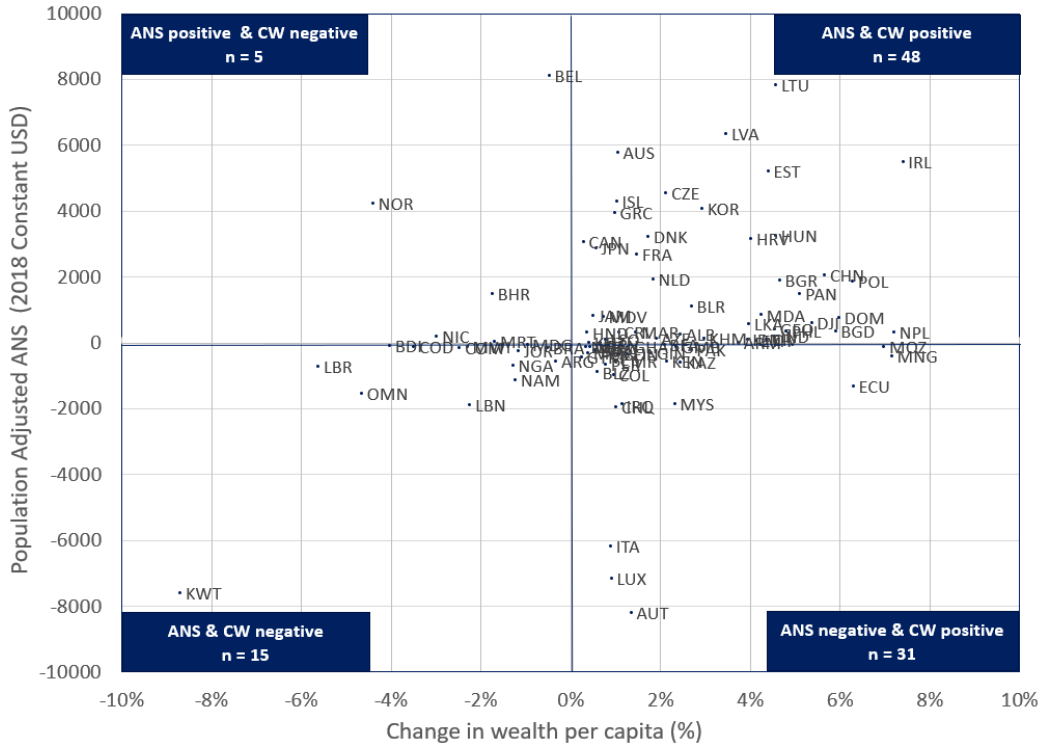
[1] See, Solow (1993), Dasgupta and Mäler (2000), Dasgupta (2001), and Arrow et al. (2004); as well as Fleurbaey and Blanchet (2013), Hamilton and Hartwick (2014), and Irwin et al. (2016) for excellent reviews.

public actors is captured, but not by private individuals or entities, which can be substantial (Ferreira and Vincent, 2005). Moreover, it does not account for the opportunity costs of education as well as depreciation. There are also differences in how depletion is valued for nonrenewable natural capital. GS/ANS computes the shadow price relative to the amount of resource extraction, while CW estimates hold the resource lifetime constant (Atkins and Venmans, 2023). This can lead to substantial differences in the asset values, as ANS estimates the average resource asset value per physical unit, while CW estimates the present value of the last unit extracted.

Moreover, SNA conventions on how to measure savings and investments drive a further wedge between GS/ANS and CW (World Bank, 2021). For example, new discoveries of subsoil assets are added to non-renewable natural capital wealth but not to GS/ANS (see also Atkins and Venmans, 2023). In addition, changes in technology, world prices or management all have impacts on the productivity of an asset or the volume of a resource to be exploited. These effects are captured only by wealth measures. For example, higher world prices for energy and minerals can make extraction for previously uneconomic resources feasible, increases nonrenewable natural capital wealth. Similarly, a switch to higher value crops or improved irrigation technology will result in higher yields and, thus higher values of agricultural land. Conversely, other exogenous factors that destroy or degrade assets, such as civil unrest or natural disaster will reduce asset values but will not be recorded in ANS.

To illustrate the importance of these differences, Figure 1 maps population-adjusted ANS onto changes in CW per capita for 2018. While there is clearly a strong correlation for most countries, a third of countries recorded positive changes in CW per capita but negative population adjusted ANS. These differences are driven by omitted factors, such as changes in the value of agricultural land or new discoveries of minerals as well as improved measurement of human capital as part of the measurement for CW>.

Figure 1. Population-adjusted ANS vs. Changes in Wealth per capita, 2018



Source: World Bank staff calculations

To provide a more comprehensive understanding of sustainability, GS/ANS and CW/IW should not be used in isolation but together. On the one hand, as long as CW/IW per capita does not decline over time future generations will be at least as well off as current generations. This can be used as a simple criterion for weakly sustainability. On the other, ANS/GS can provide policy makers with an understanding of the dynamics that drive the changes in wealth from one period to the next, capturing some (though not all) policy-induced dynamics. Corrective action can then be taken to ensure existing wealth is not squandered for short-term gains, but instead reinvest to finance future investment and, thus, economic development.

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