Changing Wealth of Nations 2021: Frequently Asked Questions

1. Is this the first time the World Bank has published a book on wealth accounting?

The World Bank established a program over 15 years ago for measuring national wealth to monitor long-term economic well-being and guide the development process through the lens of a country's portfolio of assets. This book, The Changing Wealth of Nations: Managing Assets for the Future (2021), is the fourth of a series on measuring global wealth. The first edition, Where Is the Wealth of Nations? Measuring Capital for the 21st Century (2006) was a "proof of concept" that demonstrated that wealth accounts could be constructed for a large number of countries. The second edition, The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium (2011), provided the first times series of wealth accounts for 140 countries over 10 years, which allowed examining the dynamic relationship between development and wealth. The third edition, The Changing Wealth of Nations 2018: Building a Sustainable Future (2018), included, for the first time, an explicit measure of countries' human capital. These editions of the CWON developed the argument for a new metric of sustainability for economic development, change in wealth per capita, and demonstrated its usefulness in numerous applications.

2. How is wealth calculated in the report and how is it helpful for countries?

A country's wealth includes produced capital (buildings, machinery, and infrastructure); natural capital such as agricultural land, forests, protected areas, fisheries, mangroves, minerals, oil, coal and gas reserves; human capital (broken down by gender and types of employment); and net foreign assets. Wealth accounting provides an estimate of the total wealth of nations by aggregating values of these different components of wealth. Change in wealth per capita is an indicator to assess a country's potential to grow in the future. A fall in wealth indicates that a country is depleting its assets and may not be able to sustain its future GDP growth.

3. What do we learn from wealth versus GDP?

It is useful to think of GDP as a "return on wealth." GDP is calculated by looking back on the previous year's economic activity and is considered a `flow' measure. Wealth and its composition tell us if the portfolio of assets or "stocks"—produced, natural, human capital and net foreign assets—are balanced to support GDP growth in the long-term. Wealth provides information about the long-term health of an economy, its capacity to sustain growth, reflecting depreciation and depletion of assets, and whether investments and accumulation of assets are keeping pace with population growth.

4. Should wealth accounting replace GDP as a measure?

This form of accounting should be viewed as a complement to GDP and not a replacement. Wealth complements GDP as it reflects the state of assets that produce GDP and whether investments in human, produced and natural capital are sufficient to keep pace with population growth and a country's development aspirations. Policymakers can use this information to design strategies to ensure that their GDP growth is sustained in the long run and make corrections when needed.

5. Are country trends for GDP and wealth similar or do they vary?

Generally, country trends are similar when looking at wealth and GDP. Part of the reason for this is that produced capital and human capital, which account for more than 90 percent of total wealth, are often correlated with GDP. Nevertheless, there can be situations in which trends in wealth do not follow trends in GDP. It helps to look at the composition of wealth and the balance among different assets (produced, human and natural capital, in addition to net foreign assets).

6. What happened to natural capital over the past 20 years?

Renewable natural capital (forests, mangroves, fisheries, agricultural land, and protected areas) has increased in value since 1995 globally and among all income groups. It remains critically important for low-income countries, accounting for 23 percent of their total wealth in 2018. This share is almost half of what it was in 1995 (39 percent), as these countries invested and diversified their asset portfolios by building the value of human capital and produced capital, increasing the share of those forms of capital. But while total natural capital values increased, per capita values decreased in many countries, especially the group of low and middle-income countries. Moreover, the physical stocks of key assets like forests, mangroves and fisheries have declined between 1995-2018.

Renewable natural assets nonetheless remain important even as countries grow and develop. While the share of renewables in total wealth falls with income, the per capita values are highest in high-income OECD countries. This pattern shows that the route to prosperity need not come at the expense of nature—the opposite is true.

Nonrenewable natural capital grew rapidly from 1995 until around 2014 and has been declining in value since then, driven by falling fossil fuel prices. Since 2014, nonrenewable total wealth went from US$46 trillion to US$30 trillion (a 35 percent decline in four years). This significant loss in value highlights the difficult development challenges faced by countries that are highly dependent on these assets.

7. What did you include when calculating natural capital? Did you leave anything out?

When calculating natural capital, we took into account fossil fuel energy resources (oil, gas, hard and soft coal) and minerals (bauxite, copper, gold, iron ore, lead, nickel, phosphate, silver, tin, and zinc), agricultural land (cropland and pastureland), forests (timber and forest ecosystem services), protected areas, and for the first time in this edition, blue natural capital (fisheries and mangroves). However, some natural assets were not included at this time, such as water and several ecosystem services. The core wealth accounts also do not include renewable energy resources but this edition of CWON presents experimental results on the value of renewable energy resources (hydroelectric, solar, and wind) for select countries (see Chapter 14 in the report); future work will explore the inclusion of these important assets in the core wealth account.

8. What are some other interesting trends that you are seeing in this analysis?

- Between 1995 and 2018, global wealth nearly doubled. Upper-middle-income countries saw their total wealth more than double over this period.
- Global wealth inequality is growing. Low-income countries are falling further behind in terms of their share of global wealth. If the poorest countries are going to catch up, they will need an above average rate of growth in wealth per capita. Between 1995 and 2018, the share of low-income countries in global wealth hardly changed, remaining below 1 percent despite being home to about 8 percent of the world's population.
- More than a third of low-income countries saw declining wealth per capita. In 26 countries, wealth per capita declined or stagnated between 1995 and 2018, and many (11) of these were in Sub-Saharan Africa. This means that the development path is economically unsustainable and future generations may be left worse off than current generations.
- Renewable natural assets remain crucial for low-income countries, comprising around 23 percent of their total wealth.
- Wealth in renewable natural capital per person is 3.6 times greater in high-income than low-income countries. This suggests that economic development and nature can be complements within certain limits; high income levels are associated with success in protecting and enhancing the value of natural assets, such as forests, fisheries, landscapes, productive land, and the value and scale of protected areas.
- Low- and middle- income countries appear to be trading off forests for agricultural land. Forest wealth per capita in low- and middle- income countries declined, due to loss of forested areas through deforestation and conversion to agriculture. The area in agriculture increased by 4 percent over 1995–2018, while forest land area declined by 4 percent during the same period. Forest wealth per capita declined by 8 percent, and agriculture wealth per capita increased by 9 percent.

- Wealth in agricultural lands (cropland and pastureland) increased between 1995 and 2018. Simulations of the future impacts of climate change project that this trend could be reversed due to changes in temperature, precipitation, and land degradation, which could have a negative impact on crop yields.
- Fish stocks have collapsed, but the value of mangrove flood protection grew. The value of global marine fish stocks collapsed 83 percent between 1995 and 2018. Poor management of the sector has led to overfishing and a steadily declining global catch. The value of mangrove flood protection services grew 2.5 times, largely because of the substantial increase in coastal flood risk. Global mangrove wealth is now over $547 billion, mainly due to their coastal protection benefits, as coastal development increased the population and value of assets that mangroves protect from flooding.
- Nonrenewable natural capital grew rapidly from 1995 to 2014 but has been volatile and declining in value since then, mainly due to falling oil prices. High-income non-OECD countries experienced a decline in average annual growth in per capita wealth, from 1.9 to -2.7 percent, due to the drop in fossil fuel prices. The low-carbon transition could lower the global value of fossil fuel assets by US$4.4 trillion to US$6.2 trillion (by 13 - 18 percent) between 2018 and 2050.
- Human capital remains the most important component of wealth, increasing from 62 percent of total global wealth in 1995 to 64 percent in 2018.
- Human capital generally makes up a greater share of wealth as countries reach higher levels of economic development. Human capital comprised more than 60 percent of wealth in middle-income and high-income Organisation for Economic Co-operation and Development (OECD) countries in 2018, but only 50 percent in low-income countries. High-income non-OECD countries—countries that are heavily dependent on fossil fuel wealth—had the lowest share, only 34 percent of wealth.
- Unfortunately, little progress has been made toward greater gender parity in human capital over the past 25 years. Globally, women accounted for only 37 percent of human capital in 2018, only 2 percentage points greater than in 1995.Women account for less than 40 percent of human capital at all levels of development.

9. How did you calculate human capital in your research?

Human capital in the Changing Wealth of Nations is computed as the present value of future earnings for the labor force. This factors in education and skills as well as experience and the likelihood of labor force participation at various ages. The estimate follows an approach developed by Jorgenson and Fraumeni (1989, 1992). Estimates rely on household surveys from the World Bank's International Income Distribution Database, are based on several assumptions, and rely on regression analysis to compute expected earnings for the labor force. The implementation of the lifetime income approach requires data by age and gender on population, employment and labor force participation, education, earnings profiles, and survival rates.

10. Are you missing some "intangible" capital that is not captured by the current calculations of wealth?

We do not estimate the intrinsic value of institutions, governance, and policies, nor their effect on the value of other assets. For example, "social capital" often refers to the trust that promotes cooperative behavior and can facilitate economic activity and increase well-being (see chapter 15 of CWON 2021). In that sense, we are indeed not measuring some forms of "intangible" capital.

11.What is the methodology for calculating wealth accounts and where does the data come from?

CWON 2021 uses a well-established methodology, based on a balance sheet approach, and consistent with the Systems of National Accounts and System of Environmental and Economic Accounting (SNA 2008, SEEA 2014, SEEA EEA 2021). The general concept of asset valuation is that the value should equal the discounted sum of net benefits an asset is expected to generate over its lifetime. CWON uses top-down/cross country data and methodologies.

Wealth accounts are compiled by using publicly available data primarily, drawn from globally recognized and widely applied data sources at the global level, such as forest and agricultural production data from the Food and Agriculture Organization of the United Nations (FAO) or data on produced capital stocks from Penn World Table, with a methodology that is consistent across all countries. Consequently, the wealth accounts for any country are likely to be less accurate than the accounts that the country might construct using its own, more comprehensive data sources. In each edition the analysis in CWON is improved through the integration of new data sources and assets.

12. What is the difference between human capital estimates in this report and the Human Capital Project's Human Capital Index by the World Bank?

The World Bank's Human Capital Index (HCI) is an international metric measuring the human capital that a child born today can expect to attain by her 18th birthday, given the risks of poor health and poor education prevailing in her country. The HCI incorporates key dimensions of human capital: health (child survival, stunting, and adult survival rates) and the quantity and quality of schooling (expected years of school and international test scores). Using global estimates of the economic returns to education and health, these components are combined into an index that captures the expected productivity of a child born today as a future worker, relative to a benchmark of complete education and full health.

In CWON, human capital is measured as the expected future earnings of the entire labor force. It is estimated as the total present value of the expected future labor income that could be generated over the lifetime of the current working population. In other words, human capital is considered an asset that generates a stream of future economic benefits. The CWON's measure of human capital focuses on the economic benefits that a well-educated and healthy workforce generates.

The HCI uses a broader concept of human capital than CWON, incorporating several nonmonetary indicators of health and education outcomes. Conceptually, however, the two measures have much in common, as both are anchored in the development-accounting literature and measure human capital in terms of expected future earnings. The main difference between the two measures is that the HCI measures expected future earnings of a child born today, while the CWON measure estimates expected future earnings of the entire labor force. In addition, while the CWON reports estimates in monetary terms, the HCI is expressed relative to a benchmark of complete education and full health: a child born in a country with an HCI value of 0.5 will be only half as productive as a future worker as she would be if she enjoyed complete education and full health.

The CWON measure of human capital complements the HCI, using human capital outcomes that derive indirectly from factors such as educational attainment and health (probability of survival) to provide an understanding of the current stock of human capital in countries.

13. What are the policy implications of this work?

CWON 2021 is the first edition of the series to propose a set of recommendations targeting policymakers (see Policy Summary in report). Recommendations are specific to each asset category and fall under four buckets:

1. Measure and monitor wealth to boost sustainability and prosperity. Governments should measure and monitor wealth, alongside GDP. They can use the System of National Accounts (SNA) framework and the System of Environmental-Economic Accounting (SEEA) standards to integrate wealth accounting systematically into national balance sheets. CWON provides the world's most comprehensive and SNA-compatible international data on wealth that can be used as a benchmark and proxy in the absence of detailed bottom-up national wealth accounts. Other actors such as financial markets can utilize wealth accounting to track sustainability and environment, social, and governance (ESG)–related indicators.
2. Invest in sustainable wealth. Governments should create enabling conditions for balanced investments in all components of wealth, not just produced and nonrenewable assets but also human and renewable natural capital. Assets representing common and public goods, like education and public health and often the wealth provided by nature, will require public investments or active government intervention to establish property and use rights to prevent depletion or unsustainable conversion to other forms of capital. Governments also have the duty to correct market failures to enable private investment in wealth creation by aligning private returns to investments with the public benefits and damages they create.
3. Create policy incentives to protect and increase the value of wealth. Where government policies are designed to maximize short-term income only, results can come at the expense of future income and well-being opportunities. Wealth accounting helps identify and correct such policy failures. Assets that are mispriced get mismanaged. Environmentally harmful produced capital and fossil fuels are often overrewarded by markets, while essential human and renewable natural assets are often undervalued and underpriced.

This leads to the latter's degradation and depletion, with systemic risks to macrofiscal stability and potentially existential risk to humans. Governments should therefore use policies and pricing to support socially beneficial assets and do the reverse for those with negative external effects.

4. Diversify and rebalance the asset portfolio to make growth resilient to external shocks. Multiple environmental crises (climate change, biodiversity loss, ocean damage, and pollution) increase the intensity and frequency of external shocks to growth while also making these shocks more difficult to predict. Standard economic recipes for product and export diversification beyond commodities are no longer sufficient, as they often lead to accumulation of produced assets in emission-intensive manufacturing and land use. Diversification of wealth—the assets that countries rely on to generate income—can instead make economic development more resilient to uncertain external factors such as climate change and global decarbonization. A diverse asset portfolio is also more sustainable than one overly dependent on single assets, particularly depleting ones such as oil, gas, and some minerals.

14. What is the relevance of this work in the context of COP 15 and COP 26?

Comprehensive wealth accounts can help countries navigate the challenges associated with climate change and managing natural assets in a more sustainable way. A narrow focus on GDP does not reflect the unsustainable nature of fossil-fuel led development, for example, or the hidden costs and benefits of different assets comprising national wealth. A broader economic toolkit will be needed for the decades ahead as countries seek to meet ambitious climate objectives and reverse nature loss.

Detailed natural capital accounts provided by CWON can help governments track important natural assets that will support adaptation; for example, mangroves that can help protect against coastal flooding, as well as help with mitigation efforts, or forests that can act as natural carbon sinks. Tracking the transformation of forest wealth into agricultural wealth can also help countries estimate the development costs associated with different pathways. Valuing forest ecosystems, and reflecting this in policies and prices, will help ensure they are protected and that incentives are set to use natural assets in a more sustainable way.

Integrating a social cost of carbon into wealth accounts can demonstrate the hidden value of natural carbon sinks, as well as the illusory wealth in fossil fuel assets. But to make a difference in the behavior of economic agents, government policies need to translate the theoretical social cost into market prices and regulations.

15. What are the policy and methodological issues that could be addressed in future work?

While CWON 2021 has made significant progress, much work remains to be done. This edition includes pilots and discussion of where it is feasible to expand wealth coverage in future editions and to make wealth accounts even more comprehensive.

Renewable energy and water should be added to the core CWON accounts, depending on data availability. Chapter 14 of this volume provides a proof of concept that renewable energy can be part of the national balance sheets and develops experimental renewable energy accounts for a sample of 15 countries.

Although the analysis considers the potential impacts of climate change on asset value, CWON does not yet include the value of carbon retention or sequestration services as part of wealth embedded in biological ecosystems (for example, forests, soils, and oceans). Nor does it subtract the social cost of carbon from fossil fuels. There are ample cross-country data available to measure physical carbon balances but no final agreement about how to account for the value of climate regulation services in the SEEA.

The CWON team will pursue opportunities to capture how social capital and biodiversity influence the value of assets in the core accounts. These advances are somewhat different in nature. Biodiversity and social capital are what Dasgupta (2021) refers to as enabling characteristics of assets, a quality that gives value to other assets, rather than assets as such. Social capital may not easily be made part of the core monetary accounts, but new techniques to measure social capital can provide essential, complementary indicators to changes in total wealth per capita. More discussion on this topic is found in Chapter 15 of the report.