

EXECUTIVE SUMMARY

INCLUSIVE WEALTH REPORT 2018



Foreword

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Report 2018

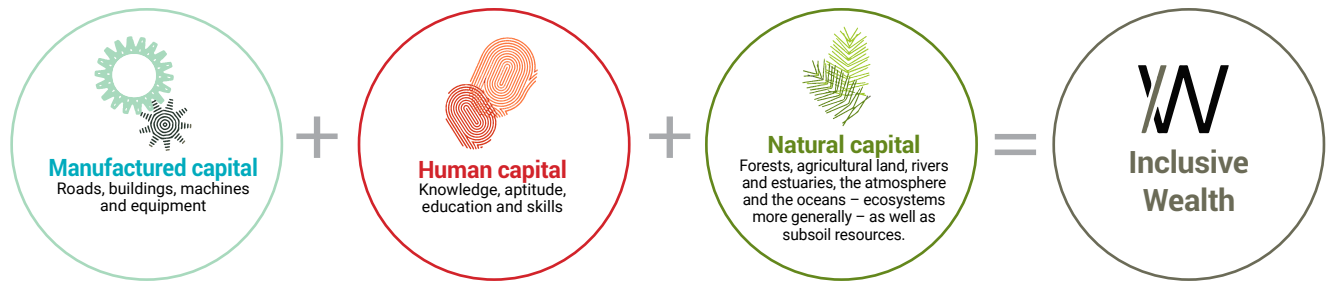
“... development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

The term sustainable development was coined in 1987 by a group of economists at the World Commission on Environment and Development. By sustainable development the commission meant “... development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This means that, relative to their respective demographic bases, each generation should bequeath to its successor at least as large a productive base as it had inherited from its predecessor. But how do we measure this? How do we measure the productive base of a nation and the sustainability of development programmes over time?

Focusing on gross domestic product (GDP) alone is clearly not the answer when it comes to measuring human well-being. The United Nations Development Programme’s annual Human Development Report routinely criticizes the attempts of national governments and international organizations to prescribe policy and assess economic performance. It says these organizations fail to correctly measure the ultimate purpose of an economy, which is to promote human well-being. It says that to use GDP and its distribution to assess economic performance is to confuse the means for the ends, and it cautions against the use of GDP as an index of economic achievement on the grounds that GDP is a measure of a country’s opulence, not its well-being. But I have never read a publication in which GDP was taken by its authors to be an end in itself. Moreover, it is not a mistake to seek to identify success (or the lack of success) in achieving ends in terms of an index of opulence. The point isn’t that opulence misleads, but that we should search for the right measure of opulence. GDP misleads when used in evaluating human well-being not because it is a measure of the means, but because it is the wrong measure of the means. Nor is the United Nations’ Human Development Index the right measure of the means.

We believe that the correct measure of a nation’s opulence is its inclusive wealth. Inclusive wealth is the dynamic version of income. It is the accounting value of an economy’s stock of manufactured capital, human capital, and natural capital (hence the qualifier “inclusive”). An economy’s inclusive wealth is the accounting value of its stock of assets. (i) manufactured capital (roads, buildings, machines, equipment), (ii) human capital (knowledge, aptitude, education, skills), and (iii) natural capital (forests, agricultural land, rivers and estuaries, the atmosphere and the oceans – ecosystems more generally – as well as subsoil resources). Durable assets like knowledge,

By assets we mean:



institutions, culture, religion – a nation's social capital – are taken to be enabling assets; that is, assets that enable the production and allocation of a nation's manufactured, human and natural capital. Wealth is a stock, whereas income is a flow. In a stationary economy the two amounts to the same thing, but they can point in different directions when an economy is not in a stationary state. This is what the authors of the *Inclusive Wealth Report 2018* show. They find that 44 out of the 140 countries in their sample have experienced a decline in inclusive wealth per capita since 1998 even though GDP (read, "income") per capita increased in all but a handful of them. It is clear, then, that GDP is a poor measure of a country's well-being because a nation's well-being can decline even though its GDP is rising.

The Sustainable Development Goals were adopted by the United Nations General Assembly in September 2015. The UN's member states have agreed to achieve the goals by 2030. Seventeen in number, the goals range from poverty eradication and improvements in education and health, to the protection of global assets that include the oceans and a stable climate. Each is of compelling importance. But neither the Sustainable Development Goals nor their background documents

mention the need to move to a system of national accounts that contains estimates of wealth. Without that move, however, there would be no way for governments to check whether or not the economic measures they take to meet the international agreement risk jeopardizing the sustainability of those goals. If wealth (adjusted for population and the distribution of wealth) increases as governments try to meet the 17 Goals, then the Goals will be sustainable; if it declines, then the Goals will be unsustainable. It could be that the goals are reached in the stipulated time period but are not sustainable because the development paths nations follow erode their productive capacities beyond repair.

The supporting documents of the United Nations' Sustainable Development Goals do not tell us how to check that the goals are being met in a sustainable way. That is why the Inclusive Wealth Index, which is based on a massive dataset that tracks changes over almost a generation, is so crucial. It is a tool that allows policymakers to assess whether or not the policies they enact are sustainable. It allows them to form better policy and to better manage the assets at their disposal. If the Sustainable Development Goals are to be achieved then a measure that tracks humanity's progress towards them is



vital. This, we believe, is precisely what the Inclusive Wealth Index does.

To better appreciate the notion of wealth that IWR 2018 advances, imagine someone is asked to estimate their personal wealth. The individual would most likely turn first to financial assets (their savings in the bank, stocks and bonds) and the properties they own (their house and belongings, for example). And they would use the market value of these assets to compute their wealth. If pressed, they would acknowledge that their future earnings at work should be included, and they would estimate this part of their wealth by making a forecast of the flow of their income and adding it up over the rest of their working life, using perhaps a market interest rate to discount future earnings. The individual would probably stop there and agree that their earned incomes represent the return on the

human capital they have accumulated (via education, skills, health). The person would also agree that wealth is important to them because it determines the opportunities they have to shape their life – the activities they can engage in, the goods they can purchase for pleasure, and so on. But they would probably overlook that their taxes pay for the public infrastructure they use. They would almost certainly not factor in the natural environment they make use of every day, free of charge. So the wealth they have computed is not inclusive.

The wealth we are interested in is far broader. Wealth is the social worth of the economy's entire stock of assets and their ability to provide goods and services over time. The social value (or accounting price) of an asset is the worth of the stream of goods and services that a society is able to obtain from it. A mangrove forest is

a habitat for fish populations. It is also a recurrent source of timber for inhabitants, and it protects people from storms and tsunamis. An economy's institutions and politics are factors determining the social value of its assets because they influence what people are able to enjoy from them. The value of a building is not independent of whether society is at peace.

An economy's inclusive wealth is the accounting price of its stock of assets – its stock of human, manufactured and natural capital. An asset's accounting price can be very different from its market value. The difference between an asset's accounting price and its market price reflects a distortion in the economy and should be eliminated if possible. To give an example, as the market price of fish in the open seas is zero, fishermen harvesting them ought to be charged for doing so. The charge, or tax in this case, is the accounting price of fish in their natural habitat. It may be wise to impose a quota on fishing, but quotas are only an extreme form of taxation (i.e. zero tax per unit caught up to the quota, a prohibitive tax beyond it).

Capital goods are to be distinguished from an economy's social environment, which is the intangible medium in which goods and services are produced and allocated among people, and across time and the generations. The social environment is made up of the laws and norms that provide people with incentives to choose one course of actions rather than another; it includes the workings of social and economic institutions such as families, firms, communities, charities, and government; and it includes the play of politics. The social environment is the seat of mutual trust. A strengthening of trust facilitates enterprise and exchange, thus enhancing personal well-being.

The social environment isn't quantifiable but it shapes events and so its

consequences are often quantifiable.

The social environment influences how we behave, such as the rate at which we consume goods and services, save and invest, borrow and lend, engage in social activities, and so on. Political scientists say that economic development co-evolves with the social environment; by which they mean institutions and politics adapt to the state of the economy as surely as the economy responds to its institutions and politics. That's another way of saying that the mix of capital goods co-evolves with the economy's social environment. Seemingly innocuous changes to the geography of voters' constituencies, for example, are known to influence political outcomes, which in turn influence the shape of institutions, and thus the policies that are chosen. Small differences in religious sensibilities can make enormous differences to the development of attitudes and thought. And so on. For any conception of social well-being, an economy's stock of capital assets and its social environment, together with a forecast of things to come, determine the accounting price of each capital good. Again, the accounting value of an economy's stock of capital goods is its inclusive wealth.

The world is in need of a better measure of human well-being as we seek to tackle some of the greatest challenges of our time. Current measures of economic progress, like GDP, are a poor indicator of well-being. They fail to take into account a nation's stock of natural, human and physical capital. We believe that the Inclusive Wealth Index is a far better measure of human progress. As such, it allows governments to track whether they are on course to meet the Sustainable Development Goals. In doing so, it provides policymakers with a measure of whether they can meet our needs today without compromising the ability of future generations to meet theirs.

Executive Summary

Inclusive Wealth Index 2018

... we need a better measure of economic progress and social well-being, one that assesses a nation's ability to look after its wealth in a way that safeguards it for future generations.

A holistic wealth of nations

Ever since the end of the Second World War countries have tended to measure economic progress in terms of gross domestic product (GDP). When GDP increases, a nation assumes its economy is doing well. Governments focus on boosting GDP and improving the efficiency of production to increase the size of their economies. The larger the economy, the more goods and services are available for consumption, the thinking goes. But the problem is that GDP is a poor way to keep count of wealth. This is partly because GDP is a measure of income and not wealth. GDP puts a value on a nation's goods and services rather than on its stock of natural, physical and human assets. If the ultimate aim of an economy is to promote well-being, then GDP is a poor measure of human progress.

There is another problem with equating economic progress with GDP: it fails to account for what a nation loses as its economy grows. Economic growth and more efficient production often go hand in hand with a rise in, for example, air and water pollution. Economies may appear to be growing when measured using GDP but if we look at the state of the biosphere today (fresh water, ocean fisheries, the atmosphere as a carbon sink), there is strong evidence to suggest that the rates at which we are using them are unsustainable. The rate of biological extinctions today is 100 to 1,000 times the average, background rate of the past several million years. Climate change is another example of an ill that has arisen in spite of – or perhaps because of – economic growth, as measured by GDP. The Aral Sea offers a more specific example of what can happen when we fail to account for natural capital when we pursue short-term economic gains. Water diversions for cotton and rice production caused the surface area of the Aral Sea to fall so dramatically that ships could no longer reach the shores of existing cities, transforming a once economically vibrant water body into one with virtually no economic value.

The mid-twentieth century marks the beginning of an era that environmental scientists call the Anthropocene, an epoch in which humans have massively altered the workings of the biosphere. And yet, over the same period, the investments of previous generations in science and technology, education and health have improved living standards in many parts of the world. Many refer to this period as the golden age of capitalism. If we invest more and grow our economies, we can improve these living standards even further, the argument goes. It should come as no surprise that the Anthropocene and the golden age of capitalism began at about the same time. It is clear that economic growth and other forms of human progress, as traditionally measured, have come at a tremendous environmental cost, one that threatens the future sustainability of our economies.

If we are to fully appreciate this cost then we need a better measure of economic progress and social well-being, one that assesses a nation's ability to look after its wealth in a way that safeguards it for future generations. This is why the Inclusive Wealth Index (IWI) was born. At its heart, the IWI is a way of measuring a country's overall well-being. Unlike GDP, it also provides a tool for countries to measure whether they are developing in a way that allows future generations to meet their own needs. This is what we mean when we call something sustainable – each generation must bequeath to the next as large a productive base as it inherited from its predecessor. If a generation follows this prescription, then the economic possibilities available to its successor would be just as good as the ones it enjoyed. Conversely, if countries fail to look after their capital properly, then the next generation will be worse off. The IWI measures exactly this. It acts as a tool to assess whether a country's social well-being, or inclusive wealth, is improving and whether this progress will last. Ultimately, the IWI aims to measure a nation's capacity to create and then maintain human well-being over time.

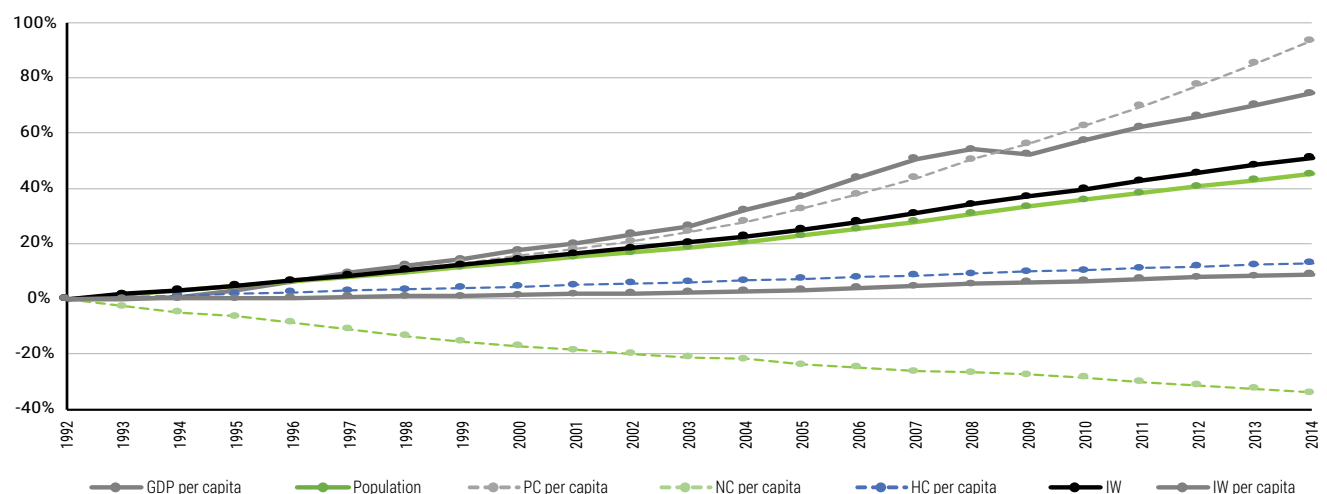
To do this, the IWI tracks the progress of 140 countries that make up the lion's share of the global economy (\$56.84

trillion) and population (almost 6.89 billion people). **Fifty countries with small economies were left out of the report because it was too difficult to obtain reliable data.** The IWI looks at each country's stock of assets – its manufactured, human and natural capital – and assesses the changing health of these assets over a quarter of a century, a massive dataset that covers almost an entire generation. A country's economy may appear to be doing well – its GDP may be growing – but at what cost? The IWI answers this question.

The Inclusive Wealth Report 2018, shows that 44 out of the 140 countries have suffered a decline in inclusive wealth per capita since 1992, even though GDP per capita increased in all but a handful of them.

This means that these countries are not on a path to sustainable development even if their economies, according to GDP, appear to be growing. They are depleting their stocks of natural, human or physical capital at rates that will leave future generations worse off. A country's inclusive wealth is the social value of all its capital assets, including

Trend in per capita inclusive wealth (global) for 1992-2014



BOX 1 - What do we mean by “inclusive” wealth?

Some economists caution against the use of GDP as an index of economic achievement. They say it is a measure of a country's opulence and not its well-being. But the point isn't that opulence misleads; it's that we need to measure opulence, or wealth, correctly. That's where inclusive wealth comes in. It is the measure, through the ages, of human well-being. It totals up the value of an economy's stock of manufactured capital, human capital and natural capital. Manufactured, or produced, capital means things like roads, buildings, machines, equipment and other physical infrastructure. Human capital means things like knowledge, education, skills, health and aptitude. Natural capital means forests, fossil fuels, fisheries, agricultural land, rivers and estuaries, oceans, the atmosphere and ecosystems, like subsoil resources, more generally. These three types of capital lead to the ultimate purpose of an economy – social well-being. They are called the productive base of the economy.

To work out the social value of an asset you need to total up the goods and services that a society obtains from it. This allows us to determine how the well-being of a society is affected by an asset. A mangrove forest, which is an example of an asset, is a habitat for fish that we then eat. It is also a source of timber. And it protects people from storms and tsunamis. Likewise, an economy's institutions and politics are factors that determine the social value of its assets because they influence what people are able to enjoy from them. Assets are stocks, not flows. They provide us with goods and services, which are flows. A tree is a stock; its fruit is an annual flow of goods, while its leaves – by inhaling carbon dioxide – provide a continuous flow of services. Putting a price on these assets allows us to measure a country's real wealth, its true well-being. Ultimately, we should simply drop the word “inclusive” from IWI and just call it what we really mean: wealth.

natural capital, human capital and produced capital. We call this the country's productive base. It is an index of a country's production potential. If a country's IWI is either increasing or stable over time, then we can say its growth is sustainable; its economy is making progress without harming the well-being of future generations.

Worryingly, the Inclusive Wealth Report 2018 shows that growth in inclusive wealth per capita, with adjustments (for total factor productivity, carbon damage, and oil capital gains), indicates that only 81 of the 140 countries, or 58% are on a sustainable path.

Why measure the real wealth of nations?

The IWI has enormous implications for economic policymaking. Using the IWI can help countries scale up resource efficiency by providing policymakers with an overview of changes in the productive base of a country. It provides insights into whether current growth is sustainable or is based on an overexploitation of natural capital. This information can help leaders develop policies that promote sustaining growth while better managing human and natural capital. The results from the previous Inclusive Wealth Report in 2014 have already shown that investing in human capital would be the most beneficial for countries with high rates of population growth. It also demonstrates the benefit of investing in natural capital, in particular agricultural land and forests. By placing a value on everything from roads to rivers, the IWI allows policymakers to better manage their countries' assets in ways that protect them for future generations.

The IWI is also a vital tool for countries seeking to meet the goals laid out in the Agenda 2030 for sustainable development. Can we achieve all the Sustainable Development Goals without having to make trade-offs? Will countries have sufficient resources to achieve poverty reduction while at the same time having enough resources left to build schools and train teachers, for example? Even if all of the Goals are achieved by 2030, the magic question is whether these gains can be maintained. Will we achieve all the goals but exhaust our resources in the process? The IWI helps policymakers answer these tricky questions.

There is a strong environmental dimension to the Sustainable Development Goals. Most of the targets are directly or indirectly

related to the status of natural capital, the planet's forests, agricultural land, rivers and estuaries, the atmosphere and oceans. The overarching message is that nations must keep their natural capital stocks intact if the world is to meet the Goals. Yet this is clearly not the case: the IWI report shows that natural capital declined in 127 of the 140 countries, even as the global economy grew.

Unfortunately, the Sustainable Development Goals only briefly mention the need for a system of national accounts that goes beyond GDP. SDG Indicator 17.19 speaks of developing "measurements of progress on sustainable development that complement gross domestic product." Without this, there will be no way for governments to check whether the economic measures they take to meet the international agreement jeopardize the sustainability of those goals. The IWI provides governments with a way of checking this. If inclusive wealth (adjusted for population and the distribution of wealth) increases as governments try to meet the SDGs, the SDGs will be sustainable; if it declines, the SDGs will be unsustainable. It could be that the goals are reached but are not sustainable in the long run because the

development paths that nations choose to follow erode their productive capacities beyond repair.

One understated variable in the Sustainable Development Goals is population. The world has seen the fastest growth in human population ever witnessed in human history. Most countries have failed to take into account dramatic population growth in policymaking. In fact, many countries have initiated population-boosting policies, fearing the demise of a workforce that they believe is required to maintain economic activity. There are major consequences of these type of policies in a world where resources are finite and increasingly scarce. Previous IW reports have shown conclusively how countries can move from being sustainable when computed in absolute terms to being sustainable when population growth is factored in. Policymakers must begin to understand the impact of population growth on the productive base. If they fail to do so, they will struggle to achieve the Goals.

Ultimately, we hope the IWI will improve the ways in which resources are allocated in the imperfect economies in which we

BOX 2 - The big debate – substituting the weak for the strong

How to put a price on the services that ecosystems provide is a controversial topic. Many ecosystem services can be evaluated by the market. Beekeeping is an obvious example. Bees make honey, which fetches a price on the market. But they also pollinate fruit trees, a service that is difficult to price. Similarly, a forest's contribution to flood control and climate regulation, and its carbon storage services are difficult to put a price on even though these services are valuable to humans, animals and other life forms. Ecosystems that provide us with services, like clean air and water, that are difficult to price are known as "critical capital". Ecologists say that the IWI fails to properly take into account critical capital. They also say that a country's IWI can appear healthy even if its natural capital and/or critical capital is being depleted. A country can chop down \$100 billion worth of forest and yet, so long as it invests \$100 billion in infrastructure, be no worse off according to its IWI. Ecologists say that this type of policymaking does not lead to strong sustainability because natural capital is being depleted. Most economists, however, allow for substitution across the three forms of capital. This type of substitution leads to what is called weak sustainability. The IWI allows for an increase in inclusive wealth per capita even though natural capital is being depleted: it can increase as long as the decrease in natural capital stocks is offset by enough of an increase in human and physical capital stocks. Reconciling the views of economists and ecologists should be possible if the context and character of resources are known. If one could identify and measure critical capital, and monitor the levels and growth of that capital, then it might be possible to develop a sustainability index of critical capital. But it is unlikely that a market value of this type of capital will enter GDP measures anytime soon.

live. We believe this database will record both the changes in and the sustainability of capital assets in the 21st century – and beyond. We hope it will eventually help solve the global problems laid down by the Sustainable Development Goals and Paris Agreement on climate change, ambitious targets that require a way of tracking our progress towards them.

What the data show

The changes in the inclusive wealth of 140 countries are calculated by annual average growth rates over the past 25 years, and 1990 is set as a base year. The results show that the growth of inclusive wealth is positive for a considerable number of countries. Top performers include Republic of Korea, Singapore and Malta among others (see Table 1). However, in a significant number of countries, population is growing more quickly than the inclusive wealth; thus, in these places we see negative per capita growth of wealth. In addition, some of the negative per capita growth of wealth occurred in countries that experienced absolute gains in wealth.

Top performers on the basis of per capita inclusive wealth for 1992-2014

IWI Ranking	Country	Average growth per head During 1992-2014
1	Republic of Korea	33.0%
2	Singapore	25.2%
3	Malta	18.9%
4	Latvia	17.9%
5	Ireland	17.1%
6	Moldova	17.0%
7	Estonia	16.0%
8	Mauritius	15.5%
9	Lithuania	15.2%
10	Portugal	13.9%

(Source: Inclusive Wealth Report 2018, Routledge, London)

For developing countries, although net wealth accumulation appears to have kept pace with income growth in recent years, the high rate of natural capital depreciation is troubling, especially in low-income economies where the problem appears to be worsening. The rate of natural capital depreciation has been on average five times larger in developing countries than in the rich OECD economies. In low- and middle-income economies other forms of capital investments have largely compensated for the rising natural capital depletion that has occurred since the late 1990s. Over the long run, these high rates of depreciation are bound to damage the sustainability of development efforts and to worsen inequality. A key focus of policies should be to improve the efficiency and sustainability of natural resource use so that natural capital depreciation in developing countries is diminished substantially.

The world economy faces two major threats: increasing natural resource degradation and the growing gap between rich and poor. These two threats are symptomatic of a growing structural imbalance in all economies, which is how nature is exploited to create wealth and how it is shared among the population. The root of this imbalance is that natural capital is under-priced, and hence over exploited, and the resulting proceeds are insufficiently invested in accumulating other forms of wealth, especially human capital.

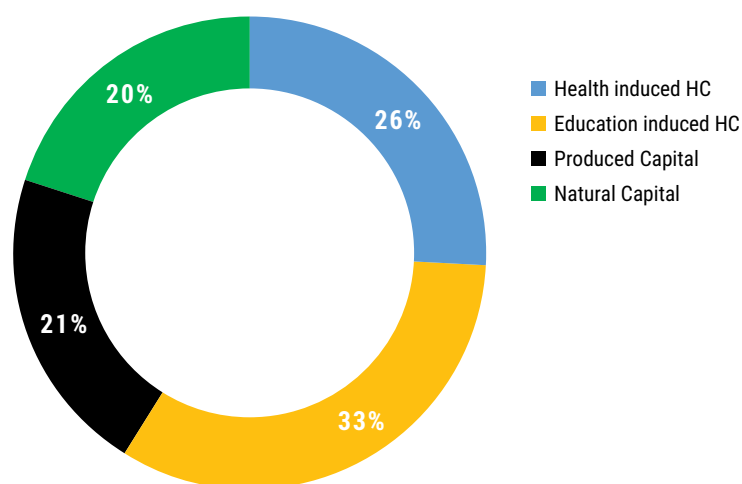
The IWI 2018 report shows that the global growth rate of inclusive wealth between 1990 and 2014 was 44%, an average growth rate of 1.8% per year. However, this rate is almost half the annual average GDP growth rate over the same period, which stood at 3.4%. Overall, natural capital's share in inclusive wealth has fallen since 1990,

while the share of human capital and physical capital has steadily increased. The overall implications are that, given that stocks of natural resources are being depleted in order to produce and accumulate wealth, any measure of national wealth that excludes natural capital depreciation likely exaggerates the actual increase in an economy's wealth over time, especially in those

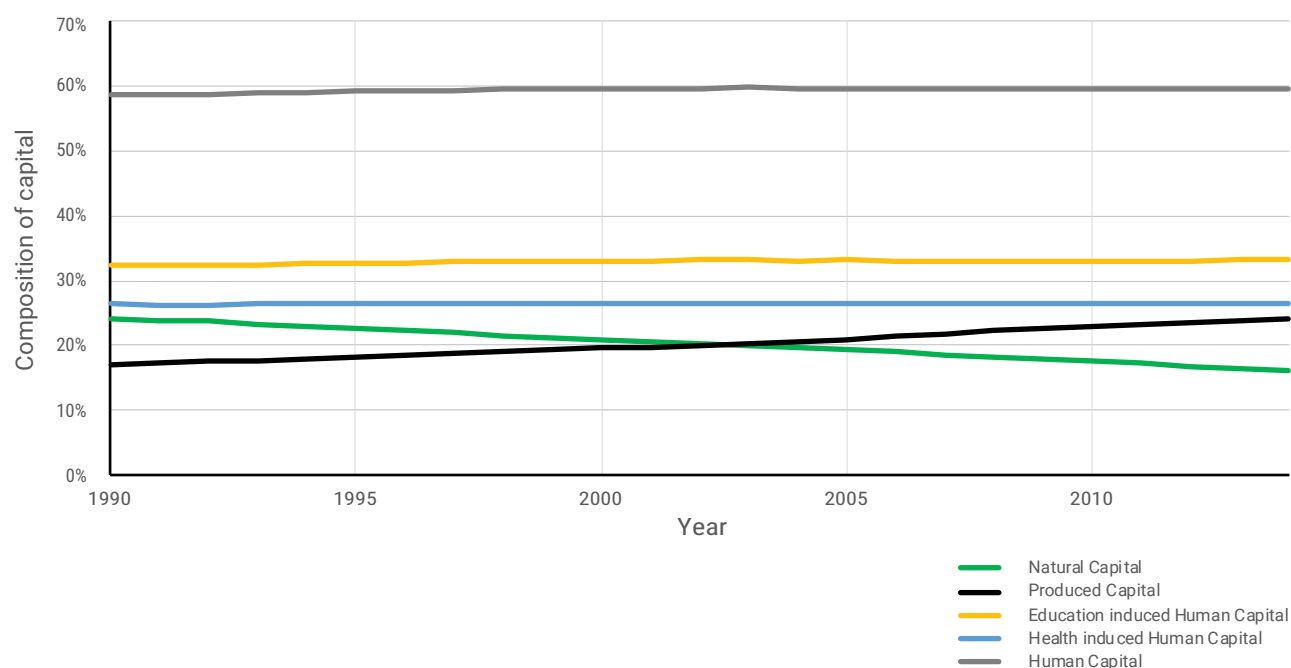
countries where accumulation of other forms of wealth is failing to compensate for diminishing natural capital.

This suggests that income and wealth inequality may be worsening in rich countries, and in the global economy generally. If overall wealth accumulation net of natural capital depreciation as a share of national income is falling while private financial wealth is rising, then the gap between rich and poor will continue to widen in all economies. For the OECD high-income countries, the long-run convergence of adjusted net savings rates with natural capital depreciation rates should raise concerns about overall wealth creation and growing inequality in these economies. For these countries, policies to encourage more economy-wide investment in other forms of capital to raise adjusted net saving rates, and especially the long-run rate of net wealth accumulation relative to growth, are urgently needed.

Global average wealth composition



Trend in global average wealth composition for 1990-2014





Our results show that 135 of 140 countries show a growth in inclusive wealth. However, this number drops significantly when adjustments for things like carbon damage and oil capital gains are factored in. With these adjustments, only 96 of the 140 countries (69%) experienced positive IWI growth rates. Fifteen countries are assessed as unsustainable by IW per capita adjusted: Bulgaria, Congo, Gabon, Gambia, Greece, Croatia, Haiti, Jamaica, Laos, Latvia, Sudan, Serbia, Syria, Ukraine, and Vietnam. Of the 124 countries with positive growth in adjusted inclusive wealth, 95 countries also experienced positive trend for the inclusive wealth per capita. The 29 countries had eroded wealth on a per capita basis.

Turning to the breakdown of growth by asset, we find that produced capital increased at an annual average rate of 3.8%, while health- and education-induced human capital growth remained at 2.1%, and natural capital decreased by 0.7%. In short, investment in produced capital has increased. However, health, education, and natural capital, in which we see enormous potential for future well-being, either grew modestly or even decreased.

On a global scale, the configuration of capital has been as follows: produced (21%), education (26%), health (33%), and natural (20%). It is remarkable that, of the trio of capitals, the value decreased only for natural capital. A natural way to interpret this outcome is that produced capital and, to a lesser extent, human capital have been enhanced at the cost of natural capital (unsustainable agriculture and industrialization, for example, leading to better ports, roads and infrastructure, at least in the short run). Under a weak substitutability criteria, the world has been experiencing sustainable growth. Our guess, however, is the world likely would not satisfy sustainability under a strong substitutability criteria (see BOX 2).

Of 121 countries, 47 averaged negative rates of per capita inclusive wealth between 1990 and 2010, placing these countries on an unsustainable path. Almost all of them are either developing or middle-income countries. Almost half of the countries are in sub-Saharan Africa. For almost all 47 countries, natural resources serve as an important source of GDP, and one can safely assume that the fall in per capita inclusive wealth is linked



directly to natural resource extraction (e.g., minerals and oil) or harvesting (e.g., forests). Also, population growth is high in most of the countries, which further serves to hamper sustainable growth.

Of the 74 countries that witnessed a rise in per capita inclusive wealth, we find that even if a country's natural capital stocks are falling these countries have offset the fall by reinvesting in physical and human capital, placing them on a sustainable path. China, for example, begins with a natural capital share of 42% in 1990, which falls to 21% by 2010, showing a major loss of natural capital. However, the rates of growth in China's human and physical capital stocks (relative to its decline in natural capital stocks) have offset these losses. This reinvestment in human and physical capital is one of the reasons China's inclusive wealth index has outperformed all other countries.

Interestingly, the report finds that it is possible to achieve per capita growth in both GDP and natural capital. Ten countries are doing well on this front, including Belgium, Armenia, Croatia, Russia and Slovenia. It is also interesting that many of the countries experiencing an increase in wealth and natural capital are former Soviet states. This may be because these countries are

undergoing profound socio-economic changes. Populations in Central Asia and Eastern Europe are declining, the discovery of fossil fuels and the improved management of forest resources since Soviet times partly explain these changes. In addition, many of these countries are experiencing relatively fast growth in produced capital and human capital. Within Eastern Europe five countries have suffered a decline in natural capital while also experiencing growth in GDP. One explanation is that forest resources in these countries – Bulgaria, Czech Republic, Hungary, Republic of Moldova and Poland – have declined along with the growth in the fossil fuel sector.

Overall, only 31 of the 140 countries experienced positive growth of natural capital. Forest resources, for example, increased in 55 of the 140 countries between 1990 and 2014. The growth of forest resources is positive for European Union (EU) countries, Japan and Russia. On the other hand, the decline of forests in Africa, Latin America, China, India, Brazil, the United States and Canada is creating pressure on their ability to develop sustainably. Broken down per capita, only 31 countries experience positive growth in forest resources. Singapore witnessed the largest per capita growth in forest resources, at 5%. At the bottom

end, the United Kingdom suffered a 6% reduction in forest resources over the same period.

Our findings show that most countries (123 of 140) experienced a declining trend of natural capital while achieving an increasing trend of wealth between 1990 and 2014. Seven countries (Albania, Armenia, Estonia, Guyana, Lithuania, Russia and Slovenia) experienced the most desirable situation in terms of growth in wealth and natural capital. These countries are on a strong sustainable development path. Only five countries (Belarus, Ukraine, Serbia, Hungary, Latvia) experienced a decline in wealth while registering an increase in natural capital.

Overall, we find that only 15 countries have increased their fishery wealth. A worrying 92 countries reported a decline in fishery wealth (33 countries reported no fishery wealth). Only Canada and some European countries have seen their fish stock increase in the past 25 years. Worryingly, only 15 countries have witnessed a positive growth rate in cropland per capita.

It is also worth mentioning that some countries that are presumably rich in natural capital are actually running out

of it: less than 1% of wealth in Bahrain and the United Kingdom in 2014 came in the form of natural capital. This may be because both of them have depleted their oil capital over the last several decades.

It is worth noting that we have included non-renewable resources as a positive natural capital asset, rather than a negative one. Clearly, if you factor in the social costs of carbon emissions – air pollution, for example – fossil fuels may be considered stranded assets or liabilities. However, the shadow price of natural capital represents the marginal contribution it makes to social well-being. The mechanism we assume is the business-as-usual scenario currently pursued by the imperfect economies in which we live. In these imperfect economies, people still believe that the benefit of fossil fuel (its use in growing the productive base) outweighs its drawbacks (the social costs of carbon) in the market. Interestingly, if we removed fossil fuels from natural capital accounting, then we would see an improvement in the growth of natural capital globally. This is because, at the global level, the decline in non-renewable resources is actually larger than the decline in renewable resources.

BOX 3 - Climate change

Not surprisingly, carbon damage as a share of inclusive wealth produces a stronger effect on small countries because their inclusive wealth tends not to be sufficiently large enough to absorb such shocks. The largest order of carbon damage with regard to inclusive wealth is seen in Luxembourg (-0.6%), followed by Malta (-0.4%), Maldives (-0.4%), Bahrain (-0.4%), and Barbados (-0.3%). Island nations are obviously the most vulnerable to climate change and are on the verge of non-existence. Some of these lie beyond the scope of the 140 countries studied for the IWI.

In absolute terms, carbon damage is relatively large in high-income countries such as Germany, France, the United Kingdom and the United States, among others. In per capita terms, carbon damage exceeds \$500 in Austria, Belgium, Switzerland, Germany, Denmark, Finland, France, the United Kingdom, Ireland, Iceland, Italy, Luxembourg, the Netherlands, Norway, and Sweden. **It is also interesting to note that some countries become better off due to climate change: Australia, Canada, Israel, New Zealand, Russia, and Singapore actually gained as a result of global carbon emissions**

Notes



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