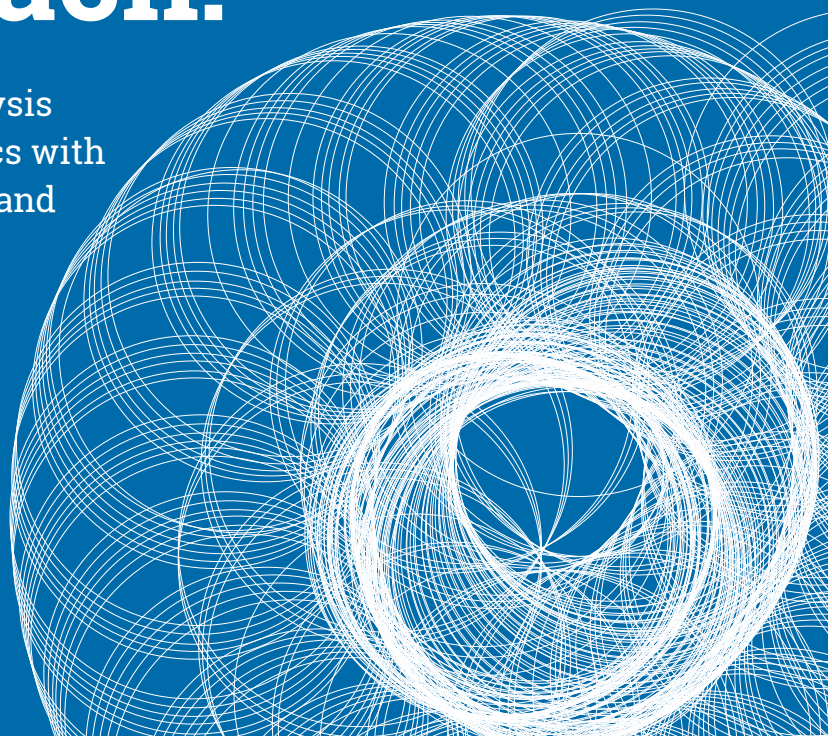


# Defining and Quantifying the Wellbeing Economic Approach:

An international analysis  
of wellbeing economics with  
a focus on measuring and  
quantifying success



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## Contents

<b>3</b>	<b>About Scotianomics</b>
<b>4</b>	<b>Executive Summary</b>
<b>5</b>	<b>Introduction</b>
<b>7</b>	<b>The Dogma of Growth</b>
7	What is Gross Domestic Product?
8	Current measures are not giving us what we want
10	The missing effects of unemployment data
11	The failure to predict the Financial Crisis
<b>12</b>	<b>Reimagining Success – The Wellbeing Economic Approach</b>
12	Why we need a wellbeing economy
<b>20</b>	<b>Wellbeing policies from other countries</b>
20	Finland
21	New Zealand
21	Iceland
22	Sweden
<b>23</b>	<b>What is Scotland currently doing on wellbeing?</b>
<b>25</b>	<b>Problems with the National Performance Framework</b>
<b>26</b>	<b>The Scotianomics Wellbeing Economic Approach</b>
26	What is the Wellbeing Economic Approach?
<b>30</b>	<b>Measuring the Wellbeing Economic Approach</b>
30	The Scotianomics Wellbeing Index
<b>35</b>	<b>Constructing the Index</b>
36	The Scotianomics Wellbeing Index 2023
38	Results
40	How to use the Index
<b>42</b>	<b>Next Steps for the Scottish Government</b>
<b>43</b>	<b>Conclusion</b>
<b>45</b>	<b>Appendix 1 – The Ideal Version of the Scotianomics Wellbeing Index</b>
<b>49</b>	<b>Appendix 2 – Constructing the Scotianomics Wellbeing Index</b>

## About Scotianomics

Scotianomics believes that we must set a new course and reinvent economics with a focus on wellbeing, of the people, of the economy and of the planet.

We face unprecedented threats on a global scale from climate change leading to increasing environmental emergencies, failing crops, rampant food inflation, shortages and forced economic migration. Other geopolitical threats include international and energy security risks, pandemic occurrences and increasing authoritarianism.

Developed nations are not insulated from these pressures. Recent energy price inflation, rising inequality and stalling economic growth coupled with inadequate social protections are creating socio-economic challenges that seem insurmountable without new thinking.

Scotianomics as an organisation is focussed on defining the Wellbeing Economic Approach in terms of practical policies, specifically within a Scottish context. Scotianomics is advising companies, stakeholders and governments on how the new principles of wellbeing economics can build a better, fairer, greener, wealthier, healthier, happier and more entrepreneurial and successful society and economy.

Nowadays data is everywhere but it is analysis that transforms data into the valuable and actionable knowledge that is the key to designing new solutions. Organisations, in both Scotland's private and public sectors, lack access to useful, reliable data and the real value-added analysis of the kind many advanced, independent countries take for granted. This creates a hidden but real disadvantage for Scottish businesses, limits public policy, disrupts the pursuit of shared prosperity and threatens the nation's socioeconomic and environmental wellbeing. Scotianomics is helping to define that approach and is working closely with the Scottish Government and its Ministers.

Scotianomics aims to spark a wellbeing economy knowledge revolution, inform, educate and engage the decision-makers on Scotland's economy.

## Executive Summary

Economics must move beyond using economic growth as a proxy for increased wellbeing. Governments continually striving for ever increasing economic growth has led the world to the brink of environmental catastrophe.

The challenges of the 21st century: climate change, increasing income inequality, declining societal cohesion and rapid technological advancement cannot be solved by referencing last centuries ideas of left and right. We need a new approach to economics that will bring the economy and society back into balance, lifting people out of poverty while protecting the planet.

- The UK economy never fully recovered from the Financial Crisis. The economy is suffering from low productivity and low growth which is keeping real wages down, causing falling living standards. Even recent pay rises gained through industrial action tend, in the main, to be lower than inflation.
- Not enough is being done to combat human-made climate change. Our inability to account for the damage we cause in our pursuit of economic growth has decimated the natural environment causing droughts, extreme weather and increased illness related to pollution.
- Even though humans are the most socially connected than any time throughout history, the societal fabric of our communities is coming undone. People are becoming less and less involved in their communities and as a result their trust in strangers is diminishing. Crumbling trust can also be seen throughout our public institutions; in the media and in civic participation.

Scotianomics champions the adoption of the Wellbeing Economic Approach by governments. The Wellbeing Economic Approach aims to treat quality of life, equality, fairness, happiness and health as economic outcomes that should be given equal weight to economic growth. You cannot have a thriving economy without a thriving society and you cannot have a thriving society without a thriving economy.

Many critics of wellbeing economics argue that wellbeing is a subjective measure. Our answer to this is the Scotianomics Wellbeing Index.

- The Scotianomics Wellbeing Index measures nations across five dimensions of wellbeing. Each dimension is composed of sub-measures which are summed together to give a dimension score. The dimension scores are then averaged to give each nation an overall Wellbeing score.
- This allows for easy comparison between nations and for policymakers to quickly understand in which dimension of the wellbeing economy their nation is failing.

## Introduction

It might come as a shock to some political commentators but we can in fact measure national wellbeing, its impact on society and on the economy. Those who say you can't are simply admitting that they do not know how. If indeed there is a problem with measuring wellbeing, it is not in the difficulty of the task but rather that when you do, it suggests that all past measures of the economy and economic approaches have been incorrect, too narrowly focused and lead to negative outcomes in societal and environmental terms; creating growth that is environmentally and economically unsustainable.

Economics is a philosophy, a social science but not an exact science. The concept that economic growth, as measured by Gross Domestic Product (GDP), is the bellwether that all economic policy should follow has become a semi-religious mantra for many politicians despite the fact that almost all economists are fully aware of its significant limitations. GDP gained popularity as it serves as a measure to justify a solely neo-capitalist economic approach, but that approach has failed and it has failed completely.

This is for two reasons: the first of which being that it doesn't suit the agenda of the established political parties or the mainstream media. Secondly, almost all attempts to create measures for wellbeing are based on outdated thinking and seek to add wellbeing tick-boxes to current economic thinking, rather than to ask the question – what is the best way to measure the socioeconomic wellbeing of the nation? Tinkering within the current system will not deliver the change we require, we must redesign the entire system.

The problem is inequality and poor wellbeing are built into the foundations of our economic system. GDP measures national income, but not how that income is distributed throughout society and that simple fact renders GDP dominated thinking on its own useless as a guide for economic policy; unless inequality, poverty, boom and bust cycles, poor environmental outcomes, unhappiness and indeed lower growth are your goals.

We need a broad-based indicator of socioeconomic progress, not a single net-income indicator. If you are not yet convinced of the inadequacy of GDP as a measure of economic health, consider that the internationally sanctioned Russian economy is predicted by the IMF to grow 0.5% more quickly than the UK's in 2024. This has shocked many observers and although the UK having applied self-sanctions in the form of Brexit may explain its low growth, it doesn't explain why the Russian economy is growing. To put it simply, war increases GDP. Every bullet made and missile launched adds to Russian GDP but that doesn't mean the Russian economy is performing well. The USA will have to rebuild after the disastrous tornado season. The local economies of those devastated towns will boom with all this construction. Would a less environmentally destructive wellbeing economic approach have made climate related disasters less frequent? The science certainly suggests it would.

Neo-liberalism ignores the fact that GDP counts output which creates societal negatives and ironically it is often those societal negatives that are the root cause of poor future GDP performance. The Wellbeing Economic Approach is about measuring the overall socioeconomic health of the nation. It creates a virtuous cycle – you can't have a thriving



economy without a thriving society and you can't have a thriving society without a thriving economy. We need an economic paradigm shift. We must cast aside last century's outdated ideas of left and right into the bin of history and accept that we can't solve the new deadly serious problems of this century with the failed ideas of the last.

What if the only way to maintain positive growth (growth that adds to national wellbeing and doesn't harm the environment) and positive societal outcomes is to maintain a socioeconomic equilibrium that requires the simultaneous implementation of ideas for improving society and the economy that have previously been considered mutually exclusive? There is clearly a hunger for a new economic approach but there is no magic bullet. We can't just keep the old system and paper over the cracks because they are no longer cracks but unbridgeable chasms.

Scotianomics has championed the Wellbeing Economic Approach for many years, first researching the core socioeconomic values of the Scottish people and suggesting policies and approaches that match those values, now we ask how do we measure the impact of the Wellbeing Economic Approach which is based upon those values.

Many nations, especially Scandinavian countries, are already making moves towards wellbeing-led policies so individual wellbeing focused policies exist but are not maximised in operation as they are stand alone policies fulfilling the role of painting over the cracks of an outdated system. What is required is a root and branch redesign of economics with a wellbeing led approach. We are suggesting bringing the best of those ideas together in a new approach and a system for measuring their impact to provide a framework for policy development. It is simply a question of seeking new and improved outcomes from the economy and if we want different outcomes, we require a different set of measures.

If we want to understand how economic policies impact the wellbeing of a nation as a whole, we can't just measure how much income is produced but also how income creation for the sake of income creation damages the nation's wellbeing and sustainable growth is only possible if we address those damaging impacts.

This report isn't the completed item but rather it begins the journey towards a holistic system for designing and quantifying the desired outcomes of the Wellbeing Economic Approach and provides international wellbeing economy comparisons. The research methods herein are put forth as a compass, a guide for policymakers. They are intended to be a yardstick against which socioeconomic policy can be measured and tested.

There is clearly a global movement developing behind the concept of wellbeing economics and Scotianomics is part of that movement. What makes Scotianomics different is that it is the think tank arm of a business network. From our perspective business and the economy are equal partners in a nation's wellbeing. In other words, we address the difficult bit of the wellbeing equation and are uniquely positioned to educate the business community on the benefits to society, the economy and their businesses from the adoption of a wellbeing economy focus.

*Gordon MacIntyre-Kemp, Chief Economist at Scotianomics*

## The Dogma of Growth

Economic systems can be defined by what they choose to measure, and often, what they choose not to measure. This action will define the priorities of policy makers and influence their actions and outcomes. As the Nobel Prize winning economist Joseph E. Stiglitz says: ‘what we measure is what we do’.

Unfortunately, for far too long, the developed economies of the world have been dogmatically measuring and focusing on the wrong things. Growth, in the form of ever increasing gross domestic product (GDP) has been of paramount importance to many economies for decades. While other measures such as unemployment, job creation and wage growth remain part of the picture they serve only as an indicator of expansion or contraction in GDP. The disasters and successes of the economic system are, at their foundations, defined by the quantity and direction of GDP in the previous two quarters. Citizens are told that the economy is booming or in recession if the direction of GDP falls one way or the other regardless of the economic realities on the ground.

It is no surprise then that even as the economic crisis of 2008 began, no pundit or policymakers and only a handful of bankers and economists saw it coming. The measurements which we chose to focus on blinded us to the realities of the situation and in the aftermath those same measures told those who had experienced the brunt of the fallout that the system was on the mend while their lives, savings, investments and homes lay in shambles.

## What is Gross Domestic Product?

Gross domestic product, the primary measure of economic success, is the monetary value of all final goods and services produced within a country in a given period. Under the expenditure approach it is composed of household consumption, investment, government spending and net exports (the value of exports minus imports). GDP is at its essence a measure of the output of an economy.

GDP’s link with societal wellbeing has been in question since its invention. Simon Kuznets, the inventor of the predecessor measure Gross National Product, which was instrumental in laying the groundwork for the invention of GDP, was the first to warn against the fixation on the measure for driving public policy. He is quoted as saying:

“Distinctions must be kept in mind between quantity and quality of growth, between its costs and returns, and between the short and the long term. Goals for more growth should specify more growth of what and for what.”

The invention of GDP was completed through the work of John Maynard Keynes, James Meade and Richard Stone as a way to measure productive capacity during the Second World War. Keynes later represented the UK at the Bretton Woods Conference

in 1944 which established many of the international financial institutions we are familiar with today such as the International Monetary Fund (IMF) and the World Bank. Through these institutions GDP became, and has remained, the primary measure of economic success. From there it has grown in influence. Today the reporting of GDP figures can trigger market selloffs, determine government budgets and remove political leaders from power.

While it is not the sole figure we used to measure the economy, due to the perceived breadth of its components GDP growth is often seen as a proxy for a healthy and prosperous economy and society. It is taken as a given that if there is growth in output there must be subsequently low unemployment, high wages, a productive workforce and a thriving society. Economists have known since the time of Keynes and Kuznets that this is not necessarily always the case, but recent events in economic history have shown that neo-liberal policy makers think the link between thriving economy and thriving society may have been severed for good.

## Current measures are not giving us what we want

The complex and sometimes contradictory nature of economics has prevented economists from advancing it to the standard of an exact science, like physics or chemistry. While economists, like physicists and chemists, construct detailed models to describe interactions in their fields, their observable subjects (human beings) are infinitely more complex and unpredictable than those in the other fields. This makes deciding what to measure in economics even more difficult and important.

When the health of the economy is reported, economists – through hundreds of years of study – have arrived at a conglomerate of measures that give an indication as to where the economy is and where it is heading. Sitting atop the unemployment rate, inflation rate, trade balance, wage growth, is GDP growth. The direction and strength of these indicators is enough to cause panic in financial markets, redirect investment and even topple governments. However, the one thing they do not do is give an entire satisfactory account of the state of a country's economy.

That is not to say that these measurements tell us nothing about economic success. Aiming for constant and steady GDP growth, with a low unemployment rate, inflation at two percent, healthy wage growth and productivity and a positive trade balance has served most Western economies well in the decades after WWII and through into the early 2000s. However, as time went on the cracks in the system began to show.

These indicators, although useful, are not all encompassing, there are many assumptions made and important considerations left out when they are compiled. Over time and as our economies began to shift from a basis of manufacturing to services and as technological advancement marched on, the preponderance of issues around what we have chosen not to measure have grown to unavoidable proportions.



## **GDP growth is not a proxy for wellbeing**

GDP and more notably, GDP per capita is still widely used by many nations as the main indicator for measuring economic success and by extension the welfare of citizens. This equivalence between GDP growth and wellbeing is at the heart of the misuse of GDP growth as the main goal of government policy.

GDP is not a measure of living standards or of overall wellbeing. Although changes in the output of goods and services is often used as a measure of whether the average citizen in a country is better or worse off, it does not capture many of the costs associated with increased output. These associated costs are often called negative externalities. Negative externalities are costs caused by producers in an economy that are not felt by the producer who is directly responsible for them.

In the pursuit of GDP growth, there are many negative externalities that are not fully realised by producers and these in the long run can have negative or drag effects on the economy and thus be counterproductive, with any short term gain coming at the cost of long term environmental clean up costs and other associated costs.

The supposed link between GDP growth and human wellbeing can be unequivocally severed when we consider that war, famine and natural disasters all increase GDP. This is because governments have to spend large amounts on arms, relief efforts and rebuilding infrastructure. During these times, wellbeing in those areas can be said to be at its lowest, however economic growth can be considerable.

## **GDP growth does not account for ecology**

The impact output growth has on the environment is something often not taken into account by policymakers. Those whose aim is continual output growth pay no price for the environmental damage that results from continual increases. It is often the case, therefore, that in the pursuit of growth there is destruction or overuse of environmental goods.

Environmental goods, such as fish, timber, or clean air, are often subject to the ‘tragedy of the commons’ whereby every individual has the incentive to consume as much of a resource as they possibly can at the expense of everyone else. A simple example of this phenomenon is the fishing industry. In the pursuit of continued growth, fishermen aim to continually increase the amount of fish they catch each year. If this is done by everyone simultaneously it can lead to overfishing, leading to everyone catching less and therefore an overall lower level of wellbeing than if the fishermen agreed to catch only a certain number each year.

This idea also applies to pollution and air quality. Harmful pollutants are often expensive to dispose of properly. If two firms are in competition with each other, one can gain the upper hand by simply bypassing the expensive process of disposing of their waste in a responsible manner and resorting to dumping it in a nearby river. This pollutes the river and causes environmental harm that reduces the wellbeing of nearby citizens.

In both of these cases economic output would have increased and thus GDP per capita would have grown. However, in the case of the fishermen, the growth they experience in one year is stripped from them the next as their catch continually declines due to lower overall fish numbers. In the case of the polluting companies, although there is economic growth, it comes at the expense of the surrounding environment and thus lowers the overall wellbeing of the individuals in the economy. The environment has limits that are being challenged by industry and this will lead to the environment limiting industry.

## **The economy must be about more than just growth for its own sake**

Using output as the primary measure of economic success fails to tell us whether or not that output is necessary or whether it is useful for society as a whole. It forces individuals into jobs that may not make them happy or give them a sense of fulfilment, nevermind the many instances in which individuals are forced into taking multiple full time jobs just to make ends meet.

At its very heart the pursuit of economic growth becomes untangled from the questions around what society should be striving towards. GDP growth is also not concerned with where the added output comes from, or where the associated rise in incomes goes, leading to rising levels of income inequality and increased child poverty rates. It does not measure the health of the population or the number of hours workers have outside of work for leisure or time with friends and family. By making GDP growth the measure by which we quantify the success of the economy we reduce human beings to little more than a factor in the production process, rather than the beneficiaries of that process.

## **The missing effects of unemployment data**

The reporting of labour participation data is the most stark example of how what we are currently measuring is not giving us the outcomes we want.

The unemployment rate is the number of unemployed divided by the total labour force. Focusing on this number alone we become blind to the indirect effects of job loss and non participation in the labour market.

The loss of a job and extended time outside of the labour market can have negative effects on wellbeing and mental health, as well as the depreciation of skills that magnify the negative impacts of unemployment on wellbeing beyond just the monetary income-loss.

High levels of unemployment can leave a scarring effect on the economy. During the high unemployment in the post-financial crisis years, students who graduated university had a tougher time finding jobs than those graduating during the boom. As a result these graduates entered the labour force later and at lower wages than their 'boom' counterparts, a situation which hampered them for the rest of their careers. The loss of human capital accrued through less on the job training and underemployment. The cost of economic downturns and unemployment have wider reaching implications than simple monetary value can capture. It can often mean a loss of knowledge as well as output.

For these reasons the focus on only a limited number of measures to gauge economic and societal welfare is bound to lead to false conclusions. It can lead to claims that the economy is in recovery after a damaging downturn, when the reality felt on the ground is that people are working in underemployed roles for lower wages or have checked out of the labour market altogether due to illness or frustration.

## The failure to predict the Financial Crisis

The 2008 Global Financial Crisis began as a crisis in the US mortgage market, which eventually spread to consume almost the entire global financial system. The knock on effects of heavy losses in the subprime mortgage departments of a handful of major banks, went unseen by the vast majority of experts, bankers and economists at the time. It appeared to all in the years prior to the crash that the global economy was on firm footing.

The renowned economist John Maynard Keynes once described money as ‘a link between the future and the present’ meaning that the decisions we make about how to spend our money today indicate how we feel about the prospects of the future. In the run-up to the 2008 Financial Crisis, the global supply of money rose from \$25 trillion to \$70 trillion.<sup>1</sup> Global GDP also rose from \$47.79 trillion in 2005 to \$64.14 trillion in 2008, just before the crash.<sup>2</sup>

In a scathing paper looking into the failure of economics as a profession to predict the Financial Crisis, eight leading academics authored a paper which found that it was once again economists’ failure to properly determine and measure important factors which contributed to the scale of the crisis going unreported until it was too late. They wrote:

“The economics profession appears to have been unaware of the long build-up to the current worldwide financial crisis and to have significantly underestimated its dimensions once it started to unfold... In our view, this lack of understanding is due to a misallocation of research efforts in economics. We trace deeper roots of this failure to the profession’s insistence on constructing that, by design, disregard the key elements driving outcomes in real world markets.”<sup>3</sup>

In other words, the models that economists used to measure the health of the economy were fundamentally flawed and indicated that the global economy was healthy and growing when in fact this growth was driven largely by subprime mortgage debt and new financial instruments the banking sector did not fully understand yet. On a deeper level the crisis was birthed out of the financial systems need for higher and higher returns to capital – a critical part of the makeup of economic growth.

1 Mason, 2015. PostCapitalism: A Guide to Our Future

2 <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2014&start=1996>

3 [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1355882](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1355882)

# Reimagining Success – The Wellbeing Economic Approach

## Why we need a wellbeing economy

As part of the UK, Scotland's economic success is tied to the UK's wider economic performance. The UK economy is in a state of chaos. GDP growth is stagnant and rampant inflation caused the Bank of England to increase interest rates to levels not seen since the Financial Crisis, putting pressure on both households and businesses. This has culminated in the largest fall in living standards since records began.<sup>4</sup>

Policymakers on one side point to the ongoing global challenges of the war in Ukraine and the fall out from the pandemic as proximate causes, those on the other side blame Brexit and the fall in trade and investment that came with it. However, these issues are merely symptoms of a larger problem at the heart of the UK economic system, a system which has never fully recovered from the damage caused by the Financial Crisis and a system which, if it is to begin to provide for its citizens again, must be drastically overhauled.

## To provide a legitimate recovery from the Financial Crisis

The aftermath of the Global Financial Crisis saw global output drop by 13% and global trade drop by 20%. In the US the unemployment rate peaked at 10% and 3.8 million people lost their homes. In the UK the unemployment rate peaked in 2011 at 8.1%.<sup>5</sup> Across the world multiple globally recognised banks had failed including Lehman Brothers. In the UK, Northern Rock, RBS and Lloyds had to be rescued at the expense of public services through austerity cuts, saddling the public purse with billions of pounds in debt. This led to a worse deal for the tax payer and therefore resistance to the higher taxation necessary to pay for underfunded essential services. Austerity leads to more austerity and fosters right wing thinking on taxes and national debt.

In Scotland during the recession, output dropped by 4% and GDP per head declined by 4.8%. Unemployment peaked at 8.9% during 2010.<sup>6</sup> However, this quickly and sharply declined, which may have contributed to experts claiming the beginnings of a recovery before it had properly materialised.

Following the recession the UK Government enacted a policy of austerity in a bid to rein in government spending and reduce the budget deficit. The impact of this policy has been decades of seriously underfunded public services, deteriorating infrastructure,

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4 <https://www.theguardian.com/business/2022/nov/17/obr-confirms-uk-enters-year-long-recession-with-half-a-million-job-losses-likely>

5 Mason, 2015. PostCapitalism: A Guide to Our Future

6 <https://fraserofallander.org/scotlands-economy-ten-years-on-from-the-financial-crisis/#:~:text=Overall%2C%20the%20recession%20wiped%204,the%20UK%20as%20a%20whole.>

stagnant wages and, as a study by the University of Glasgow shows, the preventable deaths of more than 300,000 people between 2012 and 2019<sup>7</sup>.

During this time government publications, media and experts were awash with claims that the UK was now out of a recession and well on its way to an economic recovery. A recovery which was being driven by economic growth returning to a positive trajectory after six consecutive quarters of contraction.<sup>8</sup>

What is not shown in this measure of ‘recovery’ are the families who lost their homes, those who lost retirement savings, jobs, or future opportunities. It does not include the continued scarring left on the economy by the loss of human capital from those who are underemployed, could not afford to pay for further education or are leaving education with no suitable job to go into. Stiglitz et al (2019) contends that this is a major factor in the deterioration of trust between individuals and established experts and institutions in recent decades.<sup>9</sup> Continual assertions by economists, politicians and the media that the economy has fully recovered from and is continuing to grow after the Financial Crisis has fallen on deaf ears to the general citizenry who are not seeing the benefits of that supposed recovery in the world around them.

15 years on from the Financial Crisis the UK population is still poorer than it was in 2007/8.<sup>10</sup> This has been driven, for the most part, by a total halt in real wage growth.

**Figure 1: Average weekly earnings (regular pay), adjusted for CPIH inflation compared to pre-financial crisis trend for the UK**



7 [https://www.gla.ac.uk/news/headline\\_885099\\_en.html#:~:text=University%20news-,Over%20300%2C000%20excess%20deaths%20in%20Great%20Britain%20attributed,to%20UK%20Government%20austerity%20policies](https://www.gla.ac.uk/news/headline_885099_en.html#:~:text=University%20news-,Over%20300%2C000%20excess%20deaths%20in%20Great%20Britain%20attributed,to%20UK%20Government%20austerity%20policies)

8 [https://www.parliament.uk/globalassets/documents/commons/lib/research/key\\_issues/key-issues-recession-and-recovery.pdf](https://www.parliament.uk/globalassets/documents/commons/lib/research/key_issues/key-issues-recession-and-recovery.pdf)

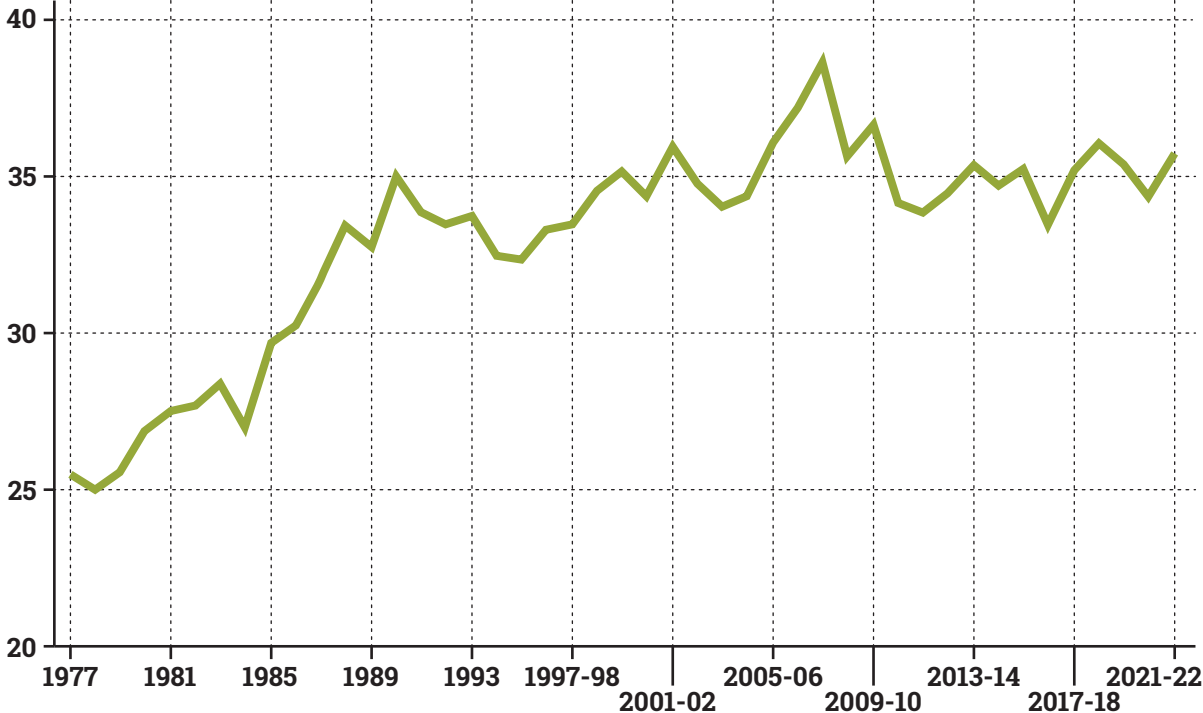
9 Stiglitz et. al (2019): Measuring What Matters

10 <https://neweconomics.org/2019/09/the-uk-population-is-still-poorer-than-it-was-in-2008>



Work by the Resolution Foundation has shown real wages have not grown since the Financial Crisis years. This has left average weekly earnings around £11,000 lower per year than they would have been if they had maintained their pre-2007/8 growth rate.<sup>11</sup> This lower than average wage growth is driving significant income inequality, however the problem originated much further back than 2007/8.

**Figure 2: UK Gini Coefficient 1977-2022**



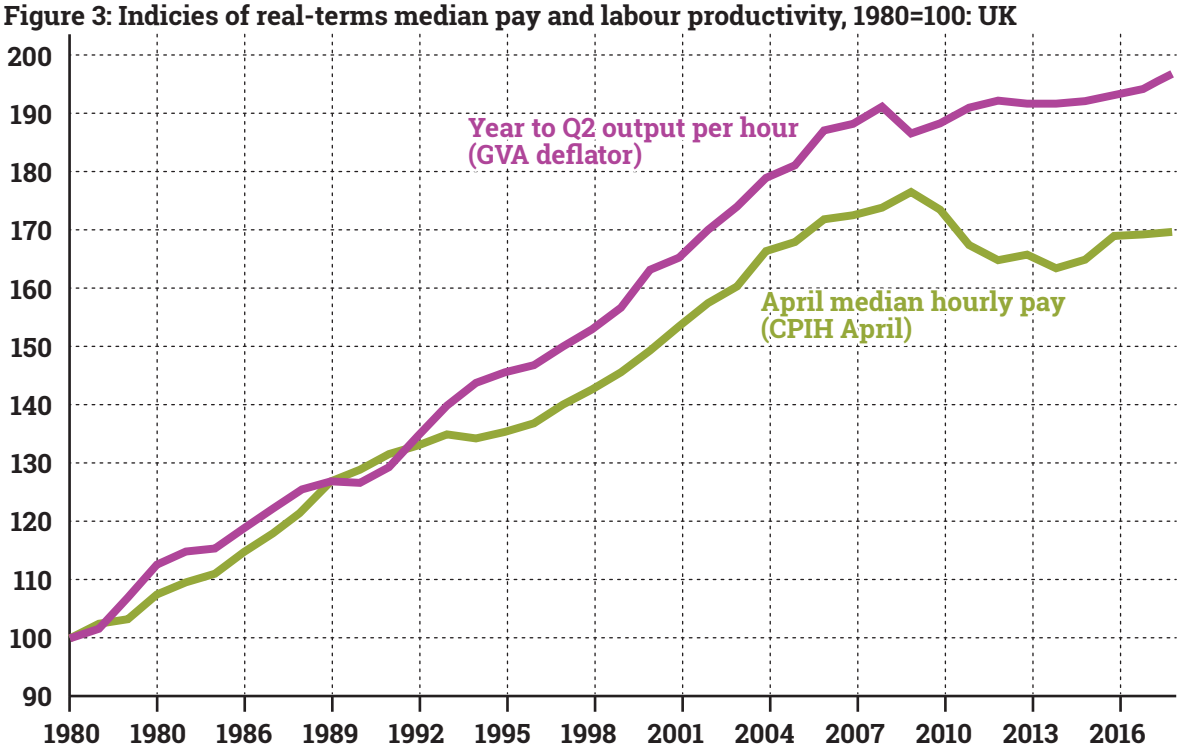
Source: ONS (2023)

The figure above shows the UK Gini Coefficient from 1977 to 2022. The Gini coefficient is a measure of income inequality. The coefficient takes the value of 100% if there is complete income inequality where one person makes 100% of the income and 0% if there is complete income equality. As we can see, income inequality in the UK has slowly risen since the end of the manufacturing era, having peaked in 2007/8 then levelled off.<sup>12</sup> The emergence of new technology led to an explosion of output per worker, which for the most part pulled wage growth along with it. However, the new technology brought with it a requirement for a more highly educated workforce, leading to a split between the highly educated, highly paid skilled roles and lower skilled, lowered paid roles.

This, however, explains only part of the inequality problem. Historically, increases in output per worker has made its way down to increased wage growth for workers. However, in recent decades the portion of output growth being directed towards wage growth has diminished, being directed instead towards increased capital income.

11 <https://www.resolutionfoundation.org/app/uploads/2023/03/Wages-are-flatlining.pdf>  
 12 <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householdincomeinequalityfinancial/financialyearending2022#:~:text=The%20Gini%20coefficient%20for%20gross,40.0%25%20in%20FYE%202020>

This is shown in the figure below where we can see that output per worker and median hourly pay become uncoupled in the early 90s and never reconnect. This has been the main driver of increased income inequality in the UK.



Source: Resolution Foundation (2020)<sup>13</sup>

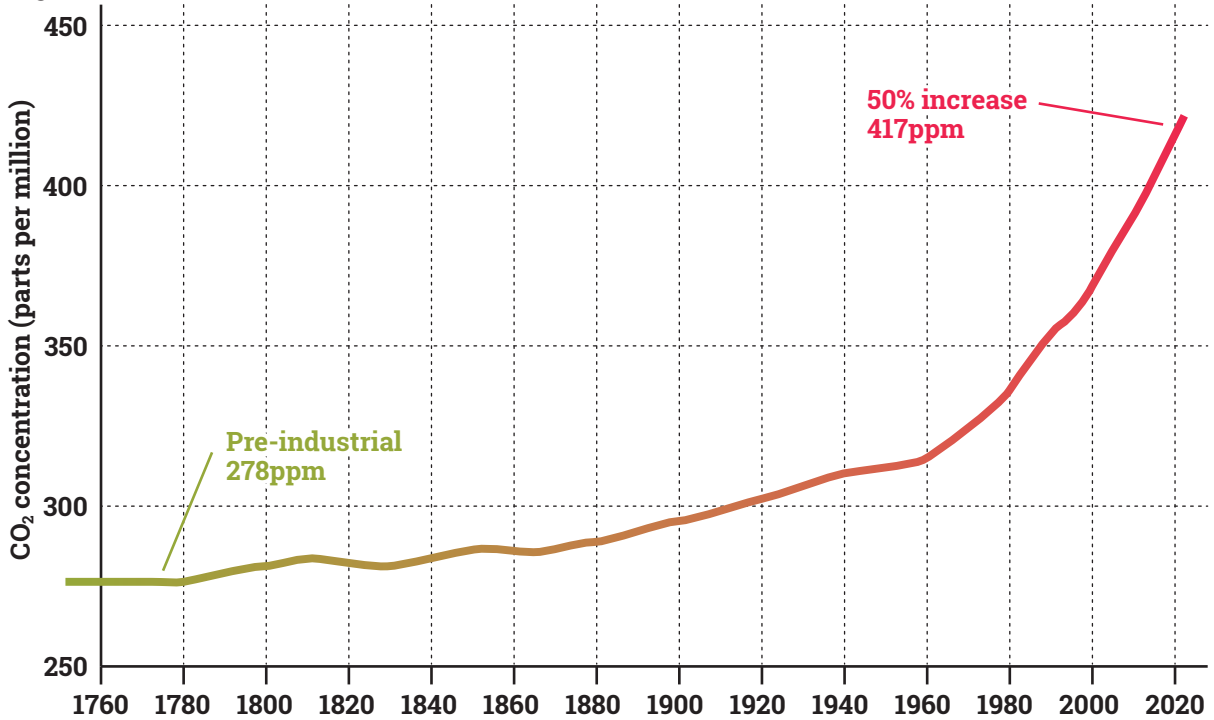
Thomas Piketty, a leading economist specialising in inequality, argues that inequality increases when the growth in capital income exceeds the growth in national income, since income from capital goes only to those who hold it, while national income is shared across all society. Capital income growth occurs when the output per worker grows faster than the average wage, where the returns from increased productivity find themselves flowing away from the wage workers and towards the owners of capital. This has been the case in the UK since the early 1990s but was exacerbated by the 2007/8 Financial Crisis.

**To protect the environment**

In order for wellbeing to be maximised, the economy, society, and the environment must exist in some form of harmony. Each depends on the other to function at its fullest potential. Human-made climate change poses the greatest threat to our current society as we know it. Since the dawn of the industrial revolution global CO<sub>2</sub> emissions have grown at exponential rates.

13 <https://www.resolutionfoundation.org/publications/dead-end-relationship/>

Figure 4: CO<sub>2</sub> at Mauna Loa



Source: Met Office<sup>14</sup>

The effect of this rapid rise in CO<sub>2</sub> emissions in the atmosphere is increased global temperatures, the occurrence of extreme weather conditions, and negative health outcomes such as increased respiratory illnesses. The link between economic growth and climate change is undeniable. Classical economics is the study of the distribution of scarce resources, of which raw materials are one facet. However, what classical economics fails to consider is that if these resources are not replenished or renewable, the overall pool of resources will over time diminish, limiting growth in the long term.

Climate change is often perceived as having a more limited impact in Scotland compared to areas that will suffer the most from the effects of global warming. However, the climate emergency can and will have a tangible impact on wellbeing here too. The Met Office has forecast that by 2070, summers in the UK will be on average between 1 and 6 degrees Celsius hotter than they are now, as well as up to 60% drier.<sup>15</sup> This could have serious knock on effects on crop yields – even in 2022, record heats led farmers to expect lower than average yields.<sup>16</sup> Continuous warming could lead to a worldwide increase in food prices by around 20% by 2050.<sup>17</sup> Food production is also under threat from loss of biodiversity. In 2020, UK wheat yields dropped by 40% due to heavy rains and drought. Agricultural settings can also become more vulnerable to

14 <https://www.carbonbrief.org/met-office-atmospheric-co2-now-hitting-50-higher-than-pre-industrial-levels/>

15 <https://www.metoffice.gov.uk/weather/climate-change/climate-change-in-the-uk#how-will-climate-change-affect-the-uk>

16 <https://www.ft.com/content/2ed52263-9269-40ee-853b-11dd54d043a6>

17 <https://lordslibrary.parliament.uk/impact-of-climate-change-and-biodiversity-loss-on-food-security/#heading-12>

pests and disease while threats to pollinators can also reduce crop growth<sup>18</sup>. Rising sea levels can also lead to loss of physical space – in Scotland around 19% of coastline is vulnerable to erosion.<sup>19</sup> 45 miles of Scotland’s rivers are so badly polluted by sewage that they are not expected to recover.<sup>20</sup>

Increased air pollution, which is considered to be the world’s single largest environmental health risk, is also having an effect on the physical health of people in Scotland. Air pollution is estimated to cause between 2,500 and 3,000 deaths in Scotland every year. However, in this case the situation appears to be improving, albeit slowly. Deaths attributable to air pollution in Scotland appear to have gone down between 2010 and 2016<sup>21</sup> and in 2022, air pollution in Scotland remained under legal limits for the first time, excluding during the COVID-19 pandemic.<sup>22</sup> This could in part be related to the implementation of policies to reduce air pollution, for example through the introduction of Low Emission Zones. The Wellbeing Economic Approach would take into account and prioritise policies aimed at protecting both environmental and population health.

As climate change causes temperatures across Scotland to rise, there are increased direct health risks, especially to people living in urban areas. The lack of green spaces within cities means that they are more vulnerable to heat waves, which can threaten the lives and health of residents.<sup>23</sup> Increased heat waves may also increase the prevalence of disease vectors such as mosquitos or ticks. In the winter months, poor energy efficiency in households can increase cases of respiratory conditions such as asthma and bronchitis.<sup>24</sup> Climate change does not also impact physical health but can also affect the mental health of the population, especially in terms of the prospect of future harm and uncertainty. ONS surveys from 2022 show that 74% of UK adults report being worried about the climate and environment.<sup>25</sup> In Scotland and the wider UK, the largest mental health risk comes from flooding.<sup>26</sup> Well-maintained greenspaces can help to reduce the risk of river flooding by reducing the total volume of floodwater, demonstrating how there is a strong link between the tangible effects of climate change and the psychological impact of the climate crisis. All of the above factors make it imperative that the economic policy of every country also addresses the impact of the climate crisis.

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18 <https://lordslibrary.parliament.uk/impact-of-climate-change-and-biodiversity-loss-on-food-security/>

19 <https://www.gla.ac.uk/research/impact/coastalerosion/>

20 <https://inews.co.uk/news/scotland/water-pollution-rivers-scotland-sewage-discharge-2182796>

21 [https://www.understandingglasgow.com/indicators/environment/air\\_quality/pm2\\_5/scottish\\_cities](https://www.understandingglasgow.com/indicators/environment/air_quality/pm2_5/scottish_cities)

22 <https://news.stv.tv/scotland/scotlands-meets-air-pollution-targets-for-first-time-excluding-lockdown-says-friends-of-the-earth>

23 [https://drive.google.com/file/d/1lBUcnirsyBkU7olYiu6JjGGcQufH\\_O\\_n/view](https://drive.google.com/file/d/1lBUcnirsyBkU7olYiu6JjGGcQufH_O_n/view)

24 <https://www.health.org.uk/publications/long-reads/health-and-climate-change-complex-problems-with-co-benefits>

25 <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/worriesaboutclimatechangegreatbritain/septembertoctober2022>

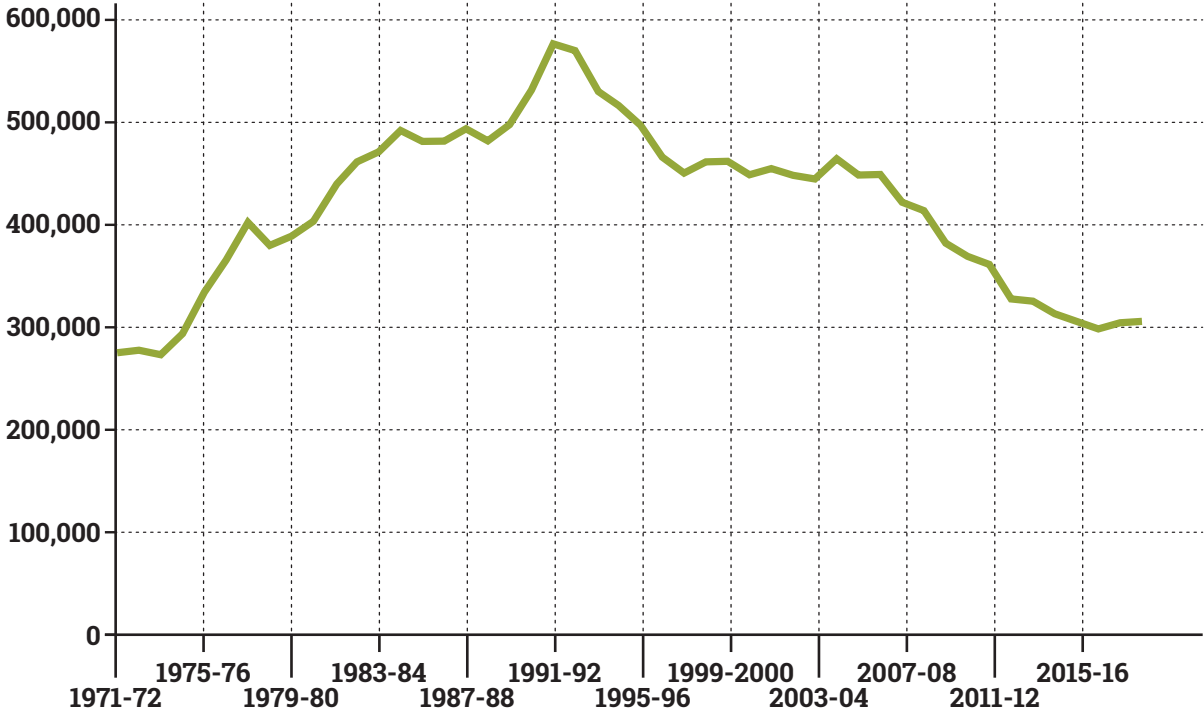
26 <https://www.longevitypanel.co.uk/landg-assets/longevity-panel/climate-change-and-health.pdf>

### To develop better societal cohesion

Relationships and how we interact with one another are important for physical health, mental health and for overall wellbeing. The interconnections in society and feelings of trust in both people and institutions are central to creating a flourishing society. Societies with high levels of social and institutional trust have higher levels of investment due to confidence that courts will uphold contracts and investment partners can be trusted to maintain their side of contracts. Higher levels of trust are also correlated with increased entrepreneurship, increased collaboration and increased trade and innovation.<sup>27</sup>

A lack of trust in strangers can be born out of increases in crime, especially violent crime. Crime in Scotland has been on a downward trend since the 1990s, however in more recent years the reduction has slowed or stopped altogether.<sup>28</sup>

**Figure 5: Total recorded crimes, 1971-2019**



Increases or perceived increases in crime can lead to people not feeling safe in their own communities. Only 66% of women in Scotland said they felt safe alone at night in their local area. Women are also six times as likely to worry about sexual assault than men and twice as likely to be concerned about muggings.<sup>29</sup>

Social cohesion also covers the social institutions we tend to take for granted such as our democracy and the media. In terms of trust in government, across the UK only 35% of people stated that they trusted the national government, which is lower

27 <https://www.oecd.org/education/innovation-education/1825662.pdf>

28 <https://www.bbc.co.uk/news/uk-scotland-49809729>

29 <https://www.safercommunitiesscotland.org/wp-content/uploads/Experiences-of-community-safety-in-Scotland-published-version-Dec2020.pdf>



than the OECD average of 41%.<sup>30</sup> 60% of people also said they do not trust any of the political parties and 48% said they do not trust the news media. A lack of trust in the civic process bleeds over into voting behaviour and civic engagement. Only 56% of people said they voted in the last local or municipal election, only 22% had contacted a local elected official in the last twelve months, and only 4% had taken part in a public demonstration.<sup>31</sup>

Economic factors play an important part in explaining the deterioration of trust in our civic institutions. Economic downturns such as 2007/08 are a clear indication that the economic system is not functioning properly. Trust is placed in political leaders and financial experts, however the aftermath of the Financial Crisis showed that when the economic system collapses it is the ordinary individuals who suffer. Even in the 'recovery' it is those in the elite class who benefit most from the supposed return to growth. This gap, between what economic experts and politicians claimed and the reality felt by those on the ground has contributed to the erosion of trust in western societies post-2008.

Interpersonal connections also make up a significant part of the social fabric of a nation. In the era of social media, when we as a species have never been so connected, more people feel lonely than ever before. In Scotland, 25% of people said they felt lonely some or all of the time over the previous month and 14% said their feelings of loneliness have led them to suicidal thoughts and feelings.<sup>32</sup> 21% of people in Scotland have also said they lack a strong sense of belonging to their community and 48% exhibit a degree of social mistrust, which is connected to their level of social contact and feelings of belonging to the local community.<sup>33</sup>

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30 <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/trustinggovernmentuk/2022>

31 <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/trustinggovernmentuk/2022>

32 <https://www.mentalhealth.org.uk/about-us/news/hundreds-thousands-adults-scotland-experience-loneliness-negatively-affects-their-mental-health>

33 <https://www.gov.scot/publications/connected-scotland-strategy-tackling-social-isolation-loneliness-building-stronger-social-connections/pages/6/>

## Wellbeing policies from other countries

The definitions and policy actions of a wellbeing economy tend to differ between countries and between organisations. The Scottish Government is a member of the Wellbeing Economy Governments (WeGo) along with Finland, Iceland, New Zealand, Wales, and Canada. Even within this organisation the policies involved in achieving a wellbeing economy differ, although the goals remain the same: to create an economy which enhances the wellbeing of citizens.

The OECD, in its paper ‘The Economy of Well-being’ defines a wellbeing economy as ‘a “virtuous circle” in which individual wellbeing and long-term economic growth are mutually reinforcing’. The OECD sees wellbeing as a compass for policy making, indicating the direction policymakers should take but leaving to them to decide the speed and mode they should use to get there. The following section will look at some of the countries pursuing a wellbeing economy and the policies they are implementing.

### Finland

Finland, in a similar vein to the other Scandinavian countries, has been implementing the framework of a wellbeing economy for a number of decades, indicated by their strong workers rights, social security system and aggressively progressive tax system. This has resulted in a country with some of the highest standards of living in the world which is commonly ranked among the top five in the World Happiness Report and the Human Development Index.<sup>34 35</sup>

In 2017/18, Finland ran its first universal basic income (UBI) pilot, giving 2,000 randomly selected unemployed people €560 with no obligation to find work or a reduction in payments if they did. The pilot found that, contrary to economic theory, people did not just become passive consumers as many found ways to remain ‘productive’, with the number of start-ups skyrocketing as the fear of failure and having no income to fall back on was now removed. Recipients said the income gave them the freedom to also say no to low paying insecure work and gave them the ability to pursue their dreams and ambitions.<sup>36</sup> As a result, researchers at Helsinki University found that those receiving UBI were more satisfied with their lives and experienced less mental strain than the control group who received nothing.<sup>37</sup>

The limited sample size of this pilot does restrict our ability to extrapolate its outcomes to wider society, however, it is nonetheless important to show the possible improvements to wellbeing that a UBI could have if implemented on a country wide scale.

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34 <https://worldhappiness.report/ed/2023/world-happiness-trust-and-social-connections-in-times-of-crisis/#ranking-of-happiness-2020-2022>

35 <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>

36 <https://weall.org/resource/finland-the-economy-of-wellbeing>

37 <https://julkaisut.valtioneuvosto.fi/handle/10024/162219>

In 2019, Finland put forward its first wellbeing plan for government called ‘Inclusive and competent Finland – a socially, economically and ecologically sustainable society’. The programme focused not on economic growth but on increasing the wellbeing of citizens through decreasing the inequality and income gaps, putting Finland on a path to carbon neutrality by 2035, and increasing wellbeing and prosperity through economic policy.

In 2021, the Minister of Social Affairs and Health, who holds the portfolio for the wellbeing economy, was tasked with creating a national action plan to integrate the economy of wellbeing approach into knowledge-based decision making.<sup>38</sup> Then in 2022, Finland established the International High-Level Group on the Economy of Wellbeing with the aim of bringing together international and multi-sectoral expertise to develop the Economy of Wellbeing as a tool for policymaking and enhance international cooperation on it.<sup>39</sup>

## New Zealand

In May of 2019, New Zealand announced the country’s first ‘Wellbeing Budget’ which committed to putting people’s wellbeing and the environment at the heart of its policies. The budget was designed to use societal and environmental measures, along with economic and fiscal ones, to guide the government’s investment and funding decisions. The success of the budget is tracked using the Treasury’s Living Standards Framework which tracks a number of wellbeing indicators split into measures of current and future wellbeing. The budget recognised five wellbeing priority areas that needed to be addressed: aiding the transition to a sustainable and low-emissions economy, supporting a thriving nation in the digital age, lifting Maori and Pacific incomes, skills and opportunities, reducing child poverty and supporting mental health for all New Zealanders.

## Iceland

In 2007/8, the Global Financial Crisis caused the collapse of Iceland’s entire banking sector. As a result Iceland experienced the largest financial crisis in the world with businesses accounting for 95% of its total GDP forced to close. However, just two years later the economy was back on the path to growth. This was achieved by the Icelandic Government’s recognition that it had let its banking sector become out of control and almost collapse the entire economy. As a result, Iceland implemented major policy changes to ensure its citizens were protected from future economic downturns. This involved nationalising all major banks and separating their foreign and domestic operations, a commitment to safeguarding social benefits and widespread debt forgiveness. The government also pursued a plan of fiscal consolidation which was paid for with high taxation on high earners. These policies lead to a rapid fall in income inequality as measured by the Gini Coefficient.

38 <https://stm.fi/en/finland-is-proactive-in-promoting-the-economy-of-wellbeing>

39 <https://weall.org/resource/finland-the-economy-of-wellbeing>

In 2019, Iceland announced it would move to measuring its economic success along the lines of wellbeing, developing 39 indicators through which it would measure its 6 wellbeing priorities: mental health, secure housing, better work-life balance, zero carbon emissions, innovation and growth, and better communication with the public.<sup>40</sup>

## Sweden

Sweden, much like its Scandinavian neighbour Finland, has been implementing wellbeing economic policies without any direct reference to wellbeing economics, putting it at the top of many measures of happiness, life satisfaction, and environmental sustainability. Sweden boasts a strong social welfare system in combination with a high top marginal tax rate, this allows citizens the freedom to focus on pursuing jobs that improve their wellbeing. A high top tax rate also means the government has considerable taxation revenues to spend on things like healthcare and environmental protection. Sweden also has strong labour welfare laws which mean only 1% of employees regularly work more than 50 hours a week. Sweden has also experimented with 6 hour work days to improve work-life balance. However, it is best known for its generous parental leave which allows parents to split 480 days between them for each child at 80% of their salaries for the first 390 days. This system promotes more direct parenting by fathers but also contributes to the broader goal of gender equality.<sup>41</sup>

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40 <https://weall.org/resource/iceland-wellbeing-framework>

41 <https://www.weforum.org/agenda/2019/05/sweden-is-a-top-performer-on-well-being-here-s-why/>

# What is Scotland currently doing on wellbeing?

Scotland is already a pioneer nation on the issue of incorporating wellbeing into its economic thinking, however there is considerable work still to be done if we are to transform the Scottish economy into one truly focused on putting wellbeing at the heart of each economic decision. The Scottish Government has also failed to align both sides of the wellbeing economy, it has done considerable work to further the social aspects of wellbeing but has failed to grasp the business side of the equation.

In 2007, Scotland introduced the first iteration of its National Performance Framework, consisting of five strategic objectives, supported by 15 National Outcomes and 45 National Indicators. Today the NPF has been revised to include 11 National Outcomes and 81 National Indicators.

**Figure 6: the purpose, values and national outcomes of the National Performance Framework**





**Figure 7: Scotland's Wellbeing Economy Monitor**



The NPF is designed to align with the United Nations Sustainable Development Goals. For Scotland, it aims to:

- create a more successful country;
- give opportunities to all people living in Scotland;
- increase the wellbeing of people living in Scotland;
- create sustainable and inclusive growth;
- reduce inequalities and give equal importance to economic, environmental and social progress.

## Problems with the National Performance Framework

These are admirable goals and align well with the notion of the Wellbeing Economic Approach put forward by this report. However, the NPF has run into many problems during its tenure.

The first of these is how the data on the Indicators are presented and interpreted. For each of the 81 National Indicators, which feed into the 11 National Outcomes, Indicators are reported to be either ‘maintained’, ‘improving’, or ‘worsening’, however there is no overall indicator for how well the National Outcomes are being met. For example, if an Outcome has within it six Indicators, with one being ‘maintained’, two ‘improving’ and three ‘worsening’, there is no measure to show whether the overall Outcome is being achieved or the importance of each Indicator to achieving the outcome. This has led to the NPF being oversaturated with Indicators and no method for easily identifying how Scotland is performing on any of its National Outcomes. Furthermore the format and data used to compile the NPF ensures that it cannot be used for international comparisons or even comparisons to the other nations of the UK.

A report by the Scottish Government into the efficacy of the NPF found that its usage across government departments was a ‘mixed picture’. It found that the NPF was ‘fully embedded in some organisations’ while in others the report found that there are:

‘Many places where other statutory duties or non-legislative frameworks are seen to take precedence. It is simply not clear to many within and outside [the] Scottish Government that the National Outcomes sit atop, or guide, the myriad of policy frameworks in use.’

These issues are echoed in Scotland’s Wellbeing Economy Monitor announced in June 2022. The Wellbeing Economy Monitor was developed to be used alongside the NPF as a way to measure Scotland’s progress and success in implementing a wellbeing economy. The monitor, however, suffers from many of the same issues as the NPF in that it is difficult to follow with regard to the interlinking relationships between measures and overall wellbeing.

The monitor also lacks depth in regard to its measures. For example, the measure of ‘Natural Capital’, an assessment of Scotland’s total environmental wellbeing, is measured by only two indicators: ‘Greenhouse gas emissions’ and ‘Biodiversity’.<sup>42</sup> While Scotianomics welcomes the efforts made by the Scottish Government towards implementing and measuring the wellbeing economy, we believe that further work is needed by the government if they are to truly implement a framework that can capture and accurately measure what improves people’s wellbeing.

In the next section, this report will lay out the Scotianomics Wellbeing Economic Approach and how the success of such an approach would be measured.

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42 <https://www.gov.scot/publications/wellbeing-economy-monitor/documents/>

## The Scotianomics Wellbeing Economic Approach

As we explained previously the UK's economy has failed to recover to the levels of prosperity seen before the 2007/8 Financial Crisis, wage growth remains stubbornly low due to low worker productivity and a larger share of technological gains going to support capital income. Adding to this people's faith in the government and media are embarrassingly low. Many people also feel much more isolated and mistrusting of those in their community.

The act of economic self harm of Britain leaving the European Union has only compounded the problems and is contributing to the current cost of living crisis, and sinking public trust in institutions. Brexit has been the final nail in the coffin of the UK economy. Brexit has caused a drop in UK GDP of roughly 5.5% in real terms, with significant drops in both trade intensity and business investment.<sup>43</sup> It has left the UK in the situation of being forecast, by the IMF, to have the lowest economic growth in the G20 in 2024, even lower than internationally sanctioned Russia.<sup>44</sup>

Scotland finds itself at a fork in the road. Do we continue to stick with the UK and its broken economic model which puts the bottom line of big business above the wellbeing of its citizens? Or do we reinvent our economy along the lines of wellbeing, similar to how Iceland realigned itself after the Global Financial Crisis? Scotianomics argues that we should choose the latter.

### What is the Wellbeing Economic Approach?

In a 2019 discussion on wellbeing, the Secretary of the OECD, Angela Gurría described the 'Economy of wellbeing' as:

"A virtuous circle in which citizens' wellbeing will drive economic prosperity, stability and resilience. This type of approach puts people at the centre of policy, moving away from the attitude that we must grow first and redistribute later. Instead, a wellbeing economy has an equitable and sustainable growth model from the outset."<sup>45</sup>

Scotianomics agrees, however we would go further. The Wellbeing Economic Approach is about more than placing people at the centre of policy. It is about the values that our economy and society holds and creating a system in which the economy is grown and nurtured out of the values of society.

Scotianomics suggests the following definitions for some of the terminology used in this and other discussion papers on wellbeing economics.

43 <https://www.businessforScotland.com/brexit-three-years-on-still-an-unmitigated-disaster-for-scotland/>

44 <https://www.bbc.co.uk/news/business-65240749>

45 OECD (2019) 'The Economy of Well-Being', Available Online: [<https://www.oecd.org/about/secretary-general/the-economy-of-well-being-iceland-september-2019.htm>]

**The Wellbeing Economic Approach:** The economic system, primarily designed and championed by Scotianomics aimed at maximising wellbeing for the people of Scotland.

**Wellbeing Economics:** A field in economics that studies policies and procedures aimed at creating a wellbeing economy.

**A Wellbeing Economy:** Any economic system whose main focus is the distribution of resources subject to the maximisation of wellbeing.

**The Wellbeing Economy:** The collection of organisations with an economy whose focus is wellbeing. For example, charities, food banks, etc.

In 2020, Scotianomics produced a paper on the ‘Public Attitudes Towards Wellbeing Economics in Scotland’.<sup>46</sup> In this paper we laid out the foundational values of the Wellbeing Economic Approach as determined through the values of the Scottish people. Through a Panelbase survey of 1,070 Scottish respondents we asked people how much their personal values aligned with that of the Wellbeing Economic Approach.

Questions fell into three broad categories.

- What did people feel the purpose of the economy and public policy should be?
- What policy initiatives are required to facilitate a genuine recovery from the pandemic?
- What policy and system level changes would they like to see prioritised in the future?

The goals of this approach were fourfold.

1. To determine how closely the values of the Scottish people match the identifiable values of the Wellbeing Economic Approach.
2. To understand how divergent the values of the people and the values driving our economic system have become.
3. To indicate ways in which the economic system could be redesigned to better match the foundational values of society.
4. To identify the common values that can be leveraged to generate a system-wide paradigm shift in economic thinking from unsustainable growth to Wellbeing.

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46 <https://www.scotianomics.org/wp-content/uploads/2021/02/Public-Attitude-Toward-Wellbeing-Economics-in-Scotland1-2.pdf>

## What are the foundational values of society?

The results of this survey made it possible for us to identify the key values of the Wellbeing Economic Approach, chief among these is the notion that quality of life, equality, happiness, and health are outcomes which should demand the same weight as economic growth when designing an economic system.

In addition to this, the focus of the economy should be on serving the needs of the people rather than the needs of big business. People should be able to live with dignity, whilst experiencing economic security and wellbeing, this should be a basic human right and not something only afforded to the wealthy.

## Policy and system level changes

Post coronavirus, our economic policies need to be re-engineered to generate higher levels of equality in health, wealth, wellbeing and access to opportunity. If we build society and our economy more successfully after coronavirus, we can create a new economic approach, allowing both our economy and our society to thrive and be more resilient in the face of crises.

The nature of work is changing, we need to invest more heavily in innovation, encourage better business practices and prepare for the future of work. Small businesses make up the backbone of our economy and greater government investment in innovation is needed to help them grow and create better quality jobs, helping to end poverty and inequality.

Education is an investment in our children and young people – it should always be free and open to everyone. The greater access to personal development opportunities it provides will increase social mobility and benefit the economy in the long-term, allowing us to close the income gap between the top and bottom.

Government expenditure on welfare and health is high due to inequalities in the current economic system – a wellbeing approach would reduce these costs, allowing for more to be invested in society instead of paying to fix the current problems of a broken system.

The Wellbeing Economic Approach would seek to end poverty, inequality and unfairness, while increasing minimum wage and ensuring job security in the economy. We must ensure this economic success is more equally shared amongst society, as this will result in better growth in the future. People also need to feel more secure in their livelihoods, a universal basic income (UBI) for every adult citizen would provide that security and end both in-work and pensioner poverty.

To ensure decisions are made with the wellbeing of those closest to the ground in mind, decision making should be less centralised, to give people a greater democratic voice in local issues. The effects of climate change on the planet and on the global economy are already undeniable, we need to reduce our economy's carbon outputs and waste, make

transport more sustainable and make recycling and repairing far more prominent. If not, the range of system level changes mentioned above will do little to prevent the catastrophe that uncontrolled climate change will reap on our economy and our societies.

## **Society and the economy**

The mantra which underpins the Wellbeing Economic Approach is that you can not have a strong economy without a strong society and you can not have a strong society without a strong economy.

This contends that a country's society and economy must be interlinked and must work harmoniously together if that country is to prosper. For this to be achieved we must be able to understand the interconnectedness of both society and the economy and be able to measure their successes and deficiencies.

The next section of this report will deal with the issue of measurement and how we measure the successes and improve upon the shortcomings of the Wellbeing Economic Approach.



# Measuring the Wellbeing Economic Approach

## The Scotianomics Wellbeing Index

In designing a tool to measure the extent to which a nation subscribes to wellbeing economics, this report has taken inspiration from other indexed measures of human welfare such as the Human Development Index developed by the United Nations in the 1990s.<sup>47</sup> The World Happiness Report,<sup>48</sup> the Gross Domestic Wellbeing Index developed by Carnegie UK<sup>49</sup> and the Legatum Prosperity Index.<sup>50</sup> Each of these measures seeks to take indicators of human prosperity and welfare using measures with varying data types and coalesce them into a single numerical score which can be compared between nations. The Scotianomics Wellbeing Index seeks to do the same for the Wellbeing Economic Approach.

*Note: Scotianomics is not a Government body and therefore is significantly limited in the quantity and quality of the data it can access, for this reason the first iteration of the Scotianomics Wellbeing Economic Index makes use of only readily available data from the OECD and other sources. In Appendix 1, we lay out our ideal version of the Index, if data access was not an issue.*

*For this, we call on the Scottish Government to make an effort to increase the quantity of the data it gathers about the Scottish Economy, such that we may improve the Index in the future.*

*The Scotianomics Wellbeing Index gives a numerical score to each of the five dimensions of the Wellbeing Economic Approach. These five dimensions are as follows:*



47 <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>

48 <https://worldhappiness.report/>

49 <https://carnegieuktrust.org.uk/programmes/gdwe/>

50 <https://www.prosperity.com/>

## The Economy

Although the Scotianomics Wellbeing Index aims to look beyond the traditional measures of economic performance, there can be no doubt that these traditional measures still tell us something about the wellbeing of a nation. Classical economics centres around the idea that there is an undeniable link between income and wellbeing, such that higher incomes necessitate higher living standards and therefore higher levels of wellbeing. Although this is a dated notion, there can be no argument against the presence of a link between the two, just not to the level suggested by the classical theories.



It is therefore important that we continue to include traditional measures for the health of the economy in our measure of wellbeing. The following section will include a list of the indicators used to measure economic health and a justification for their inclusion in the Scotianomics Wellbeing Index.

Sub-measures:

- GDP per capita (\$)
- Gross household disposable income (\$)
- GDP growth rate (5 year average)
- Exports as % of GDP
- S&P sovereign risk score
- Labour Productivity (output per worker)
- Employment rate (5 year average)

## Human Development

The Human Development dimension captures the ability of individuals to reach their full potential. It captures the quality of their health outcomes and their access to and participation in education.



Scotianomics recognises that in order to reach a higher level of wellbeing, individuals require a basic standard of health. The quality and availability of healthcare is a major factor in life satisfaction and those in good mental and physical health report higher levels of wellbeing. Poor health outcomes are often associated with lower wellbeing as they prevent individuals from enjoying life to the fullest.

Education is also an important measure in capturing wellbeing. A higher level of education opens doors and opportunities that would otherwise be closed off. A better education allows individuals to contribute more to society. A well educated workforce is also more productive and efficient, leading to greater economic output and the potential for increasing the overall standard of living in a country. Incarceration levels also impact on development, those who find themselves in the prison system are thus unable to contribute to society and the economy. Often upon release they find their human capital has dwindled, making it difficult for them to advance to their true potential leaving them contributing less to the economy and society than they otherwise would have.

Human Development also includes equality in the labour market and how much time is devoted to working. This is captured by the difference in employment rates between men and women and the average annual hours spent working. A thriving society requires that there be equality in the labour market and greater equality between men and women ultimately leads to increased societal welfare. Although labour participation is important, it is also important that there exists a satisfactory work-life balance in the economy, so that people have a good balance between their working life, hobbies and interests, and time with friends and family.

Sub-measures:

- Life expectancy at birth
- Healthcare spending per capita (\$)
- Average years of completed education at age 25+
- Average annual working hours
- Probability (%) of dying between 30 and 70 from any cardiovascular disease, cancer, diabetes, or chronic respiratory disease
- Medical doctors per 10,000
- Incarceration rate (prisoners per 10,000)
- Difference in Employment Rate between Men and Women (% of working age population)

## Living Environment

The Living Environment dimension measures the elements of the physical environment that have an impact on wellbeing. It measures the extent to which the nation protects its ecosystem and provides clean air and water for its citizens. With the threat of climate change looming, it is more important than ever that nations make strides to protect and preserve the natural environment, as this is critical for long-term wellbeing.



Sub-measures:

- Greenhouse gas emissions per capita
- Air quality (PM2.5 micrograms per cubic metre)
- Water quality (DALY score)
- Proportion of electricity from renewables
- Ambient air pollution attributable death rate (per 100 000 population)

## Community

This dimension measures the cohesiveness of society. The Wellbeing Economic Approach is centred around the idea that you cannot have a strong economy without a strong society and vice versa. Here we seek to report on how well a society functions as a collective, through its treatment of income inequality, especially among the elderly; its civic participation and the trust in institutions;

how safe people feel in their communities; and the treatment and acceptance of immigrants and refugees. The aim here is to mould a tolerant, compassionate, respectful society which seeks to limit inequality. Only once this is achieved can we say that we are maximising the wellbeing of all in society.

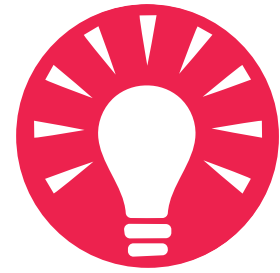


Sub-measures:

- Net pension replacement rate
- Inequality measured by Gini Coefficient
- Freedom House score
- Estimated rate of homicides per 100,000
- Migrant Integration Policy Index – labour market mobility

## Future Proofing

The Future Proofing dimension tracks the preparedness of a society to deal with and adapt to the future. Wellbeing within a society is a goal for the present but it must also be the aim of government to sustain that level of wellbeing into the future and to elevate it. This is done through technological innovation but also through preparing the next generation and equipping them with the skills and knowledge to succeed and improve society.



Sub-measures:

- Investment in R&D (% of GDP)
- Fixed broadband subscriptions per 100
- Population with tertiary education (% of 25-34 year olds)
- Proportion of 0-2 year olds in pre-school
- Proportion of 3-5 year olds in pre-school

# Constructing the Index

## 1. Selecting the Dimensions and Sub-measures

The dimensions and their sub-measures were selected with reference to the current literature regarding wellbeing economics. As mentioned above many nations have previously published work on the wellbeing economy and made various moves to implement wellbeing policies into their programmes for government. From there, we attempted to identify and measure the components of what makes up a satisfactory life.

Once we had a framework in place, we worked to ascertain the extent of the availability of data on each of our dimensions. Given the number of countries we sought to measure, we limited ourselves to members of the OECD. Data from the OECD is readily available to the public and covers a large extent of the sub-measures we wished to include in our analysis. However, we would argue that improvements to the Index could be made in future given access to higher quality cross-country data. Given this, in Appendix 1 we have laid out our ideal framework for the index and the dimensions and sub-measures it would employ.

## 2. Standardisation

The sub-measures used in the Index come from many different sources and are based on numerous units of measurement, including ordinal scales, percentages and index scores from other measures. In order for these to be comparable they must be normalised. For this, we employed a distance to frontier approach. The first step in this process is assigning a maximum and minimum value to each sub-measure. These upper and lower values act as a natural zero and aspiring target from which each variable is standardised. For the purposes of this Index the minimum bound was set at 10% below the lowest sub-measure value, unless this took the value below zero or the sub-measure in question has a distinct range which it is impossible to fall lower than. The maximum bound was set at 10% above the highest sub-measure value, unless this took the value above the amount set by the distinct range of the sub-measure. The conclusion of this process gives each sub-measure a value between 0 and 1. A further breakdown of this is available in Appendix 2.

## 3. Dimension Scores and Overall Scoring

To get the Dimension scores we took an average of the sub-measure scores created in the previous step, giving the Dimensions a value between 0 and 1. The same process is then done to give each nation an overall score. The Dimension scores are averaged then multiplied by 100 to give each nation an overall score out of 100. Countries are then ranked according to their Scotianomics Wellbeing Index score to give a complete picture of the wellbeing of the nation. However, each Dimension will also have a score which can be compared to both a nation's previous scores and to other nations. It will also show where nations can make up ground in terms of their overall wellbeing.

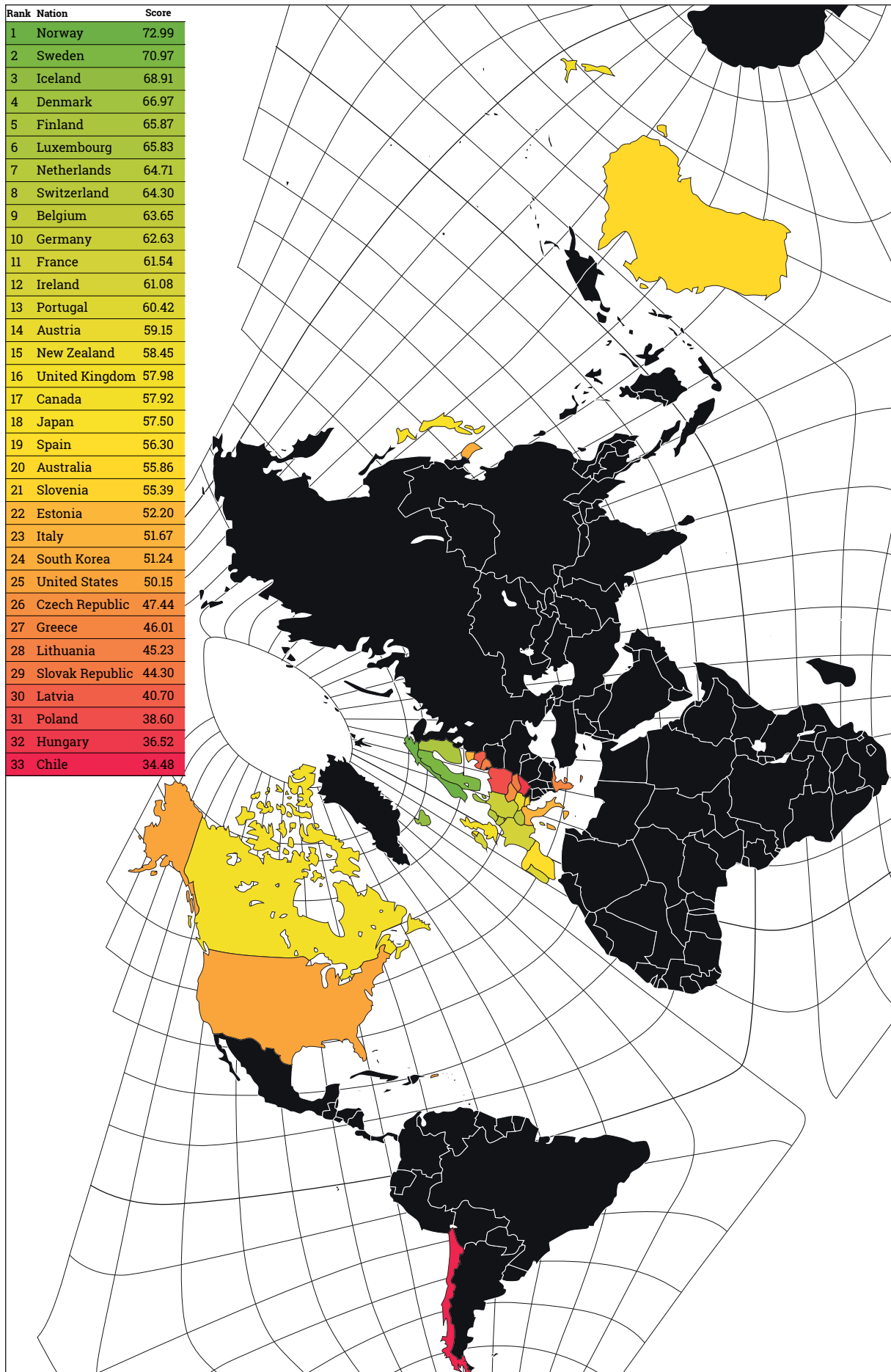


# The Scotianomics Wellbeing Index 2023



Rank	Nation	Overall	Economy	Human Development	Living Environment	Community	Future Proofing
			Score	Score	Score	Score	Score
1	Norway	72.99	60.26	70.20	81.73	84.30	68.45
2	Sweden	70.97	52.13	72.03	86.96	78.70	65.04
3	Iceland	68.91	51.99	67.15	94.35	70.67	60.41
4	Denmark	66.97	53.54	65.42	77.11	70.53	68.23
5	Finland	65.87	54.47	65.30	81.51	78.73	49.34
6	Luxembourg	65.83	78.95	62.33	58.35	67.60	61.93
7	Netherlands	64.71	51.88	62.23	65.74	74.89	68.83
8	Switzerland	64.30	58.01	65.93	77.60	69.51	50.45
9	Belgium	63.65	48.66	64.43	61.49	74.54	69.14
10	Germany	62.63	50.72	66.76	66.14	71.35	58.20
11	France	61.54	43.19	57.99	71.85	66.37	68.30
12	Ireland	61.08	63.40	54.01	70.02	63.66	54.30
13	Portugal	60.42	40.64	53.62	74.07	78.33	55.43
14	Austria	59.15	48.70	62.97	67.01	72.30	44.74
15	New Zealand	58.45	42.66	53.97	70.39	75.80	49.40
16	United Kingdom	57.98	42.13	58.31	71.97	54.95	62.54
17	Canada	57.92	46.30	57.45	59.27	68.73	57.87
18	Japan	57.50	37.48	57.37	62.06	65.51	65.07
19	Spain	56.30	30.70	52.52	73.78	73.02	51.46
20	Australia	55.86	51.32	58.06	55.35	62.85	51.74
21	Slovenia	55.39	47.43	54.76	52.78	70.10	51.88
22	Estonia	52.20	41.82	51.82	61.04	61.59	44.75
23	Italy	51.67	40.84	47.33	66.92	65.77	37.49
24	South Korea	51.24	32.99	44.91	39.84	54.69	83.78
25	United States	50.15	55.03	48.08	53.50	37.86	56.29
26	Czech Republic	47.44	45.38	50.16	41.36	64.29	36.01
27	Greece	46.01	19.48	45.19	64.39	62.58	38.42
28	Lithuania	45.23	43.91	52.01	44.91	41.06	44.25
29	Slovak Republic	44.30	37.47	49.59	43.48	63.46	27.52
30	Latvia	40.70	38.17	45.15	47.48	35.87	36.82
31	Poland	38.60	34.02	40.44	31.70	56.49	30.35
32	Hungary	36.52	32.09	37.90	36.32	39.84	36.44
33	Chile	34.48	26.30	36.48	48.61	37.54	23.48

Rank	Nation	Score
1	Norway	72.99
2	Sweden	70.97
3	Iceland	68.91
4	Denmark	66.97
5	Finland	65.87
6	Luxembourg	65.83
7	Netherlands	64.71
8	Switzerland	64.30
9	Belgium	63.65
10	Germany	62.63
11	France	61.54
12	Ireland	61.08
13	Portugal	60.42
14	Austria	59.15
15	New Zealand	58.45
16	United Kingdom	57.98
17	Canada	57.92
18	Japan	57.50
19	Spain	56.30
20	Australia	55.86
21	Slovenia	55.39
22	Estonia	52.20
23	Italy	51.67
24	South Korea	51.24
25	United States	50.15
26	Czech Republic	47.44
27	Greece	46.01
28	Lithuania	45.23
29	Slovak Republic	44.30
30	Latvia	40.70
31	Poland	38.60
32	Hungary	36.52
33	Chile	34.48



## Results

The table above shows a clear indication of which countries are successfully implementing a wellbeing economy. The top ten is dominated by small northern European nations with Norway, Sweden and Iceland taking the top three slots.

Within these countries, the Economy dimension is by far the weakest contributor to the overall wellbeing score, with Norway (the top nation in terms of wellbeing score) having an Economy score of 60.26. Iceland, third overall, received an Economy score of only 51.99. This is an indication that in order to achieve maximal wellbeing, countries will have to sacrifice the maximisation of economic growth, as these countries scored highly on the other dimensions of the Wellbeing Economic Approach.

Within the top five countries there are notably high scores in both the Living Environment and Community dimensions with Iceland, Sweden and Norway boasting the highest Living Environment scores of 94.35, 86.96 and 81.73 respectively. Norway also holds the highest score for Community at 84.30.

### UK results

As a Scottish think tank, Scotianomics is primarily interested in the performance of Scotland's economy and by extension, the UK. The UK comes out with an overall Wellbeing score of 59.78 and is ranked 16th out of the 33 countries we analysed, just ahead of Canada at 57.92 but behind New Zealand at 58.45. The UK scores below average on its 'Economy' and 'Community' Dimensions, a testament to its failed 'recovery' from the Financial Crisis through its pursuit of austerity policies and the subsequent erosion of trust in its public institutions and experts following the claims the countries economy was strong and improving despite the situation on the ground for millions telling a different story.

It scores only above average on 'Human Development', with a score of 58.31 versus an average of 55.51. Where it scores above average is on its 'Living Environment' and 'Future Proofing', scoring 71.97 against an average of 62.40 and 62.54 against an average of 52.37 respectively.

### Scotland results

Scotland was not included in the official Scotianomics Wellbeing Economic Index 2023 due to our inability to gather sufficient data on Scotland that correspond with similar data from the other countries included. However, rather than not include Scotland at all we worked to estimate, to the best of our ability with the available data, where Scotland would feature on the Index.

In our Scottish estimation, Scotland has an overall Wellbeing score of 60.9 and is ranked 13th out of the 34 OECD countries, beating out the UK which falls to 17th. Scotland scores above the average on 'Human Development' due to its high number of years of education and low employment inequality. Scotland also scores above average

on 'Living Environment', where it places 3rd overall; this is due a significant amount of its energy coming from renewable sources and its excellent air and water quality.

Scotland lags behind the average on the 'Economy', 'Community' and 'Future Proofing' dimensions. The significant areas which let it down in the 'Economy' are its low gross disposable household income and labour productivity. Under the 'Community' dimension, Scotland suffers under the UK's state pension system, giving it a net pension replacement rate of only 16.7. In 'Future Proofing', Scotland's lack of childcare for 0-2 year olds holds it back from a better score. However, the First Minister, Humza Yousaf, announced as part of his leadership bid, a plan to extend free childcare offered in Scotland to cover 0-2 year olds.<sup>51</sup>

It is important to note again that this is a current estimate of Scotland's position on the Wellbeing Economic Index. To give us the full picture we need the Scottish Government to commit to investing in gathering more statistics about the Scottish economy and society.

## How to use the Index

For the 33 nations in the Index, we make use of the same sub-measures and combine them in the same way to give the dimension scores and then the overall Scotianomics Wellbeing Index Score. This makes it easy to compare scores across countries. Giving a breakdown of the dimension scores allows policymakers to see which areas are in need of targeted improvement if they are to improve overall wellbeing in their society. For example, Korea scores 83.78 on the 'Future Proofing' dimension, however, its low scores on the 'Economy' and 'Living Environment' are severely limiting the wellbeing of its population. This allows policymakers to understand where the limiting factors in their societies are located and design tailor made policies to bring them back into balance.

Sitting atop the policy making structure, the Wellbeing Economic Approach will act as an overarching philosophy through which policy decisions and action are taken. Through this philosophy, policymakers will allocate resources to areas which require attention. The Scotianomics Wellbeing Economic Index will work as the guide for which areas of society are most in need of attention to bring society and the economy back into a state of equilibrium.

Individual projects will continue to be appraised and costed with reference to standard economic appraisal techniques. However, these techniques may be modified to incorporate a larger role for wellbeing in the costing of policies. The UK Government has previously published guidance for incorporating wellbeing into its policy appraisal process known as the 'Green Book'.<sup>52</sup> We would see policymakers use this as a starting guide to be updated and refined as needed.

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51 <https://www.thenational.scot/news/23351211.snp-leadership-humza-yousaf-introduce-major-rollout-free-childcare/>

52 <https://www.gov.uk/government/publications/green-book-supplementary-guidance-wellbeing#:~:text=It%20includes%20an%20overview%20of,included%20in%20cost%20benefit%20analysis.>

## Next Steps for the Scottish Government

Scotland is a data poor country. We gather very little data about our own economy and even less about it in relation to other economies around the world. This significantly hampers organisations such as Scotianomics from making detailed and in-depth analysis of Scotland's economic situation.

If we are to give a proper account of Scotland's economy, we require that the Scottish Government commit itself to gathering more information, to put Scotland on par with independent nations. This will involve expanding the role of the statistical arm of the Scottish Government and increasing its funding such that it is able to accurately gather and process larger quantities of data.

These are the next steps the Scottish Government needs to take to ensure Scotland is no longer a data poor country.

- **The Scottish Government must commit to forming a Scottish Statistics Authority on par with the Office for National Statistics.**
- **The Scottish Government must strengthen the powers of the new Scottish Statistics Authority over businesses to ensure they can gather sufficient economic data.**

By implementing the above proposals the Scottish Government will ensure that Scotland is no longer a data poor country and that it can be included in the next iteration of the Scotianomics Wellbeing Economic Index.

## Conclusion

This report has made the argument for a shift in our economic goals away from output growth and towards societal wellbeing. The reverence of growth among economists is coming to an end. We have known since its invention that GDP is a flawed measure, yet we have designed our economic system around it. We have, or too long, focused on the wrong indicators when looking to measure economic success. It is time for that to change.

The UK economy has never fully recovered from the 2007/8 Financial Crisis. Real wages for workers have failed to grow, leaving today's employees' income £11,000 per year lower than it would have been if wages had continued to grow at pre-crisis levels. Arguably, the downfall of neo-capitalism began in the decades prior to this. As the UK shifted from a primarily manufacturing to a service based economy, the link between labour productivity and wages, which had kept both slowly rising, broke as more and more income was diverted from labour to capital- resulting in increased inequality.

The threat of climate change also looms large over humanity. The decisions of policy makers and firms to pursue output growth above all else has had a detrimental impact on the planet. Since the dawn of the Industrial Revolution, CO<sub>2</sub> emissions have grown at exponential rates. With this has come: increased pollution related illness and deaths, increased occurrences of extreme weather events, and increased drought and famine. Scotland has felt the tangible impacts of climate change. In 2020, UK wheat yields dropped due to heavy rains and drought. The Met Office also forecasts that by 2070, summers in the UK will be far hotter than they are now, as well as considerably drier. This will have knock on effects on food availability and prices.

Social cohesion is also on the decline in the UK. The social relationships we have and how we interact with one another are important for both our physical and mental health. Although our society is the most interconnected it has ever been through technology, many feel more alone than ever. People are becoming less and less involved in their communities, leading to feelings of not belonging and fostering mistrust of strangers. This growing mistrust is bleeding over into our public institutions. Trust in government, political parties and the media is worryingly low. The result of this is decreased civic engagement as people feel their voices and opinions do not matter.

To break these trends, Scotianomics is calling on government to implement a wellbeing economy. Through the Wellbeing Economic Approach, government policy and business decisions will put the wellbeing of all members of society on equal footing with economic growth. This has already been achieved by many nations with great success such as: Finland, New Zealand, Iceland and Sweden. Scotland has made the beginning strides towards a wellbeing economy by implementing the National Performance Framework and the Wellbeing Economy Monitor. However, these initiatives have not been widely rolled out across all of government and are used to varying degrees to dictate policy.



Critics of the wellbeing economy argue that it is difficult to define and even more difficult to measure. It is therefore unsuitable as a goal of public policy. However, in this report we have laid out the framework for the Scotianomics Wellbeing Index, which successfully measures the wellbeing of 33 OECD nations across five key wellbeing dimensions. The Scotianomics Wellbeing Index gives each country a Wellbeing Score out of 100 which is internationally comparable and can be tracked over time to allow policymakers to assess the impact of their policies on wellbeing. Each of the dimensions is also scored to allow governments to assess the exact area of the wellbeing economy in which they are lacking and to tailor policy to address this.

The UK's current Scotianomics Wellbeing Index Score is 59.78, with a rank of 16 out of 33. This leaves it effectively in the middle of the table, a disappointing score for such a wealthy nation. Although it scores relatively well on measures of 'Living Environment' and 'Future Proofing', the UK lacks significantly behind other OECD nations on measures of the 'Economy', 'Community' and 'Human Development'.

This report outlines the need for the adoption of the Wellbeing Economic Approach and highlights the failures and limitations of classical economics and neo-capitalism to put societal wellbeing at the heart of policy making. This report has also developed a model for measuring the success of a country's wellbeing economy through the Scotianomics Wellbeing Index. It is the hope of Scotianomics that through the publication of this report, we can encourage governments to adopt the Wellbeing Economic Approach and move to a place where their economies provide a fairer, greener, healthier and more productive population.

## Appendix 1 – The Ideal Version of the Scotianomics Wellbeing Index

The Scotianomics Wellbeing Index, as reported in this document, although useful, lacks data on indicators we believe are essential to measuring the wellbeing of a nation. As a think tank, we rely on other organisations to provide large scale dataset from which we can infer our conclusions, whether that be NGOs or international governmental organisations such as the OECD. Unfortunately, however, they do not always ask the questions we want them to do or gather data in the areas we deem to be important. The Index as reported above is the culmination of areas we deem to be important and data that is readily available. However, here we would like to put forward our outline for the Scotianomics Wellbeing Index if access to data was not an issue.

We maintain the five key dimensions as we did above, however, we have included significantly more sub-measures which cover a wider range of issues we consider important for wellbeing maximisation. These are listed below:

### The Economy

- GDP per capita
- Gross Household Disposable Income (PPP)
- GDP Growth Rate 5-year average
- Exports as % of GDP
- Measure of risk premium on sovereign debt
- Measure of the threshold at which a government's debt to GDP ratio becomes unsustainable
- Labour Productivity
- Employment Rate 5-year average
- Measure for ease of investment
- How easy is it to start a business



## Human Development



### Healthcare

- Life expectancy at birth
- Healthcare spending per capita
- Measure on overall healthcare satisfaction
- Overall measure of healthcare outcomes
- Medical Doctors per 10,000

### Education

- Attainment gap between men and women
- Average years of completed education at 25
- Measure of the quality of education

### Labour

- Average annual hours worked
- Measure of leisure time
- Measure of job satisfaction
- Underemployment measure
- Difference in employment rate between men and women
- Gender pay gap

### Crime

- Incarceration rate
- Reoffending rate

## Living Environment



### Environment Quality

- Greenhouse gas emissions
- Air Quality
- Water Quality
- Proportion of electricity from renewables
- Ambient air pollution deaths

### Housing

- Housing quality
- Housing cost as proportion of annual income

### Infrastructure

- Quality of public transport
- Cost of public transport
- Access to green areas
- Has your area improved in the last ten years?
- Walkability of surrounding area

## Community



### Relationships

- Do you have close family ties?
- Do you have a friend or friend group?
- How recently have you made a new friend?
- Do you have the opportunity to make new friends?
- Hours spent volunteering per week

### Civil Equality

- Income inequality (Gini Coefficient)
- Net Pension Replacement Rate
- Measure of gender equality

### Public Trust

- Measure of trust in public institutions
- Measure of trust in media
- Measure of trust in strangers
- Measure of trust in judicial system

### Civil Liberties

- Civic participation
- Measure of the right to free assembly and speech
- Experiencing Crime:
- Experienced crime this year?
- Experienced violent crime this year?
- Rate of homicides per 100,000

### Rights on minority groups

- Measure of the opinion of immigrants and refugees
- How easy is it for immigrants and refugees to integrate
- Measure of the rights of LGBT community

## Future Proofing

### Investing in research

- Investment in R&D (% of GDP)
- Fixed Broadband subscriptions per 100
- % of the economy made up of high tech manufacturing
- % of GDP invested in renewables research
- % of GDP invested in carbon capture and storage

### Proportion of workforce in R&D

- Investing in people:
- Population with tertiary education (% of 25-34 year olds)
- % of 0-5 year olds in pre-school
- Measure of parental maternity leave



## Appendix 2 – Constructing the Scotianomics Wellbeing Index

The Scotianomics Wellbeing Index is constructed using five Dimensions which add together to measure the wellbeing of a nation. The final score is a composite of the scores of the five Dimension Scores, which each contain sub-measures within them. The Dimensions and sub-measures are listed below.

### Dimensions

#### The Economy

- GDP per capita (\$)» OECD (2023), <https://stats.oecd.org/index.aspx?queryid=61433#>
- Gross Household Disposable Income (\$) – Take as percentage of average income» OECD (2023), <https://data.oecd.org/hha/household-disposable-income.htm>
- GDP Growth Rate (5-year average)» OECD (2023), <https://stats.oecd.org/index.aspx?queryid=60703#>
- Exports as % of GDP» OECD (2023), <https://data.oecd.org/trade/trade-in-goods-and-services.htm>
- Standard & Poors Global Risk Rating» S&P (2023), <https://disclosure.spglobal.com/sri/>
- Labour Productivity» OECD(2023), <https://data.oecd.org/lprdy/gdp-per-hour-worked.htm#indicator-chart>
- Employment Rate (5-year average)» OECD (2023), <https://data.oecd.org/emp/employment-rate.htm>

#### Human Development

- Life expectancy at birth» OECD (2020), <https://data.oecd.org/healthstat/life-expectancy-at-birth.htm>
- Healthcare Spending per capita (\$)» OECD (2020), <https://data.oecd.org/healthres/health-spending.htm>



- Average years of completed education aged 25+
  - » Global data lab (2021), <https://globaldatalab.org/shdi/table/msch/CAN+CHL+COL+MEX+USA+AUS+ISR+JPN+NZL+KOR+TUR+AUT+BEL+CZE+DNK+EST+FIN+FRA+DEU+GRC+HUN+ISL+IRL+ITA+LVA+LTU+LUX+NLD+NOR+POL+PRT+SVK+SVN+ESP+SWE+CHE+GBR/?levels=1&years=2021&interpolation=0&extrapolation=0>
- Average annual hours worked
  - » OECD (2021), <https://data.oecd.org/emp/hours-worked.htm>
- Probability (%) of dying between 30 and 70 from any cardiovascular disease, cancer, diabetes, or chronic respiratory disease
  - » World Health Organisation (2019), [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/probability-of-dying-between-exact-ages-30-and-70-from-any-of-cardiovascular-disease-cancer-diabetes-or-chronic-respiratory-\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/probability-of-dying-between-exact-ages-30-and-70-from-any-of-cardiovascular-disease-cancer-diabetes-or-chronic-respiratory-(-))
- Medical Doctors per 10,000
  - » World Health Organisation (2021), [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-\(per-10-000-population\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-(per-10-000-population))
- Incarceration Rate (prisoners per 100,000)
  - » Prisonerstudies.org (2021), [https://www.prisonstudies.org/sites/default/files/resources/downloads/world\\_prison\\_population\\_list\\_13th\\_edition.pdf](https://www.prisonstudies.org/sites/default/files/resources/downloads/world_prison_population_list_13th_edition.pdf)
- Difference in employment rate between Men and Women (% of working age population)
  - » OECD (2022), <https://data.oecd.org/emp/employment-rate.htm#indicator-chart>

## Living Environment

- Greenhouse Gas Emissions (CO<sub>2</sub> tonnes per capita)
  - » OECD (2021), <https://data.oecd.org/air/air-and-ghg-emissions.htm>
- Air Quality (PM2.5 micrograms per cubic meter) – (environmental health outcomes)
  - » OECD (2019), <https://data.oecd.org/air/air-pollution-exposure.htm#indicator-chart>
- Water Quality (DALY score)
  - » Yale University EPI (2022), <https://epi.yale.edu/epi-results/2020/component/h2o>
- Proportion of Electricity from Renewables (% of Primary energy supply)
  - » OECD (2021), <https://data.oecd.org/energy/renewable-energy.htm#indicator-chart>
- Ambient air pollution attributable death rate (per 100 000 population) age-standardised
  - » World Health Organisation (2019), [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/ambient-air-pollution-attributable-death-rate-\(per-100-000-population\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/ambient-air-pollution-attributable-death-rate-(per-100-000-population))

## Community

- Net Pension Replacement Rate
  - » OECD (2020), <https://www.oecd-ilibrary.org/deliver/ca401ebd-en.pdf?itemId=%2Fcontent%2Fpublication%2Fca401ebd-en&mimeType=pdf>
- Gini Coefficient
  - » OECD (2018), <https://data.oecd.org/inequality/income-inequality.htm>
  - » Chile: World Bank, <https://data.worldbank.org/indicator/SI.POV.GINI?locations=CO-CL>
  - » Iceland: Statistics Iceland (2018), <https://www.statice.is/publications/news-archive/wages-and-income/the-gini-coefficient-and-at-risk-of-poverty-threshold-2018/>
- Freedom House Index
  - » <https://freedomhouse.org/countries/freedom-world/scores>
- Estimate of Rate of Homicides per 100,000
  - » World Health Organisation (2019), <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimates-of-rates-of-homicides-per-100-000-population>
- Migrant Integration Policy Index
  - » Migrant Integration Policy Index (2020), <https://www.mipex.eu/play/>

## Future Proofing

- Investment in Research and Development (% of GDP)
  - » OECD (2019), <https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>
- Fixed broadband subscriptions per 100:
  - » OECD (2021), <https://data.oecd.org/broadband/fixed-broadband-subscriptions.htm#indicator-chart>
- Population with tertiary education (% of 25-34 year olds)
  - » OECD (2021), <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>
- % of 0-2 year olds in pre-school
  - » OECD (2020), [https://www.oecd.org/els/soc/PF3\\_2\\_Enrolment\\_childcare\\_preschool.pdf](https://www.oecd.org/els/soc/PF3_2_Enrolment_childcare_preschool.pdf)
  - » Canada: Statistics Canada (2022), <https://www150.statcan.gc.ca/n1/daily-quotidien/220601/dq220601a-eng.htm>
  - » USA: National Center for Education Statistics (2019), <https://nces.ed.gov/fastfacts/display.asp?id=4>
- % of 3 year olds in pre-school
  - » OECD (2020): [https://www.oecd.org/els/soc/PF3\\_2\\_Enrolment\\_childcare\\_preschool.pdf](https://www.oecd.org/els/soc/PF3_2_Enrolment_childcare_preschool.pdf)
  - » Canada: Statistics Canada (2022), <https://www150.statcan.gc.ca/n1/daily-quotidien/220601/dq220601a-eng.htm>
  - » USA: National Center for Education Statistics (2019), <https://nces.ed.gov/fastfacts/display.asp?id=4>

## Sub-measure Normalisation

To allow for equal comparison between sub-measures, they must be normalised into the same scale. This is done by using a distance to frontier approach which compares the sub-measure values to a ‘best case’ and ‘worst case’ scenario, to achieve this the ‘best case’ value is set as 10% above the highest value for the sub-measure and the ‘worst case’ is set at 10% below the lowest value. This process is carried out for all sub-measures unless the measure is measured on a scale which cannot go above or below given bounds, in which case the minimum value is set to the minimum and maximum it can be.

Once the upper and lower bounds are set the values of the sub-measures are transformed into values between 1 and 0 by the following formula:

$$\text{submeasure index}_{\text{H}} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

The above formula applies to sub-measures where a higher score is considered to be better for wellbeing, for example the number of medical doctors per 100,000 of population. For sub-measures where the lower the value the better the impact on wellbeing, the following formula is used:

$$\text{submeasure index}_{\text{L}} = \frac{\text{actual value} - \text{maximum value}}{\text{minimum value} - \text{maximum value}}$$

## Income

Income is one area which is treated differently. Since there are diminishing returns to wellbeing on increased income (i.e., one extra pound of income is less impactful on wellbeing the more is added) the equation for the sub-measures involving income is as follows:

$$\text{submeasure index}_{(i)} = \frac{\log(\text{actual value}) - \log(\text{minimum value})}{\log(\text{maximum value}) - \log(\text{minimum value})}$$

## Dimension Index

Once the sub-measure values have been normalised across each of the five dimensions the average values of the sub-measures contained within each of the dimensions are taken to calculate five Dimension Scores, these are also between 0 and 1.

## The Scotianomics Wellbeing Index Score

To calculate the overall Scotianomics Wellbeing Index Score for a nation, the mean of its Dimension Scores is taken then multiplied by 100 to give a Wellbeing Index Score between 0 and 100.