Sustainable Progress Index 2017

A report undertaken for Social Justice Ireland by:

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February 2017

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1. Introduction

Adam Smith's book, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), is often seen as the beginning of modern economic theory, but for Smith it was one part of the larger field of Moral Philosophy.   While the Economics profession has moved away from the broader understanding of economics, especially in the 20th century, we believe there is now a drift back towards a more social science approach to understanding economic outcomes, and an increasing inclusion of ethical analysis in economic discourse. Economies are embedded in societies and thus the values, customs, laws and regulations of these societies will shape and form economic activity. Moreover, since a major part of society's efforts is centred on the task of material reproduction, understanding the economy is critical to understanding society.   It could be argued that a society's existence requires that the economic problem be solved successfully.   Thus, when Smith writes about 'the wealth of nations', and focuses on the material aspects of wealth, it is in the context of a broader understanding of wealth.[i] This broader view of wealth is becoming more popular amongst social scientists and also economists.

The widely observed, almost universal desire for wealth comes from the connection between wealth and well-being; a connection that is enhanced by the variety of ways both 'wealth' and 'well-being' can be, and are, defined. Indeed, the word 'wealth' comes from the old English 'welde' and its meaning is a material analogy to health. Wealth is often defined as something that promotes material well-being, or at least the material component of well-being. Many material and non-material 'assets' can contribute to our well-being and many of these same 'assets' can also harm our well-being. They can promote one person or group's well-being at the expense of another person or group's well-being. Food is necessary for life, and a good meal will make you feel better; but food that is stolen, or produced through exploitation will only redistribute well-being. Too much food will make you feel sick, and thus hamper rather than promote well-being. The social context of the creation, distribution and use of wealth is what gives wealth its meaning, and as societies evolve, so too does how we understand wealth and well-being.

Adam Smith recognized the interconnection between the economy and society. The history, laws, customs, and governance of a community shape and is shaped by the economy. It is useful to consider the views of another great social scientist of the 18th century; Charles de Secondat, Baron de Montesquieu[ii]. He not only set out the interconnection between laws, customs and economics (influencing Smith 30 years later), but also recognized the important role of climate (or natural environmental factors as we would call them today) as one of the active factors in shaping a country's laws and institutions.[iii] The challenges of climate change, caused mostly by the human activity of wealth creation, prevent us from ignoring the environmental impacts of economic activity.   The changing material conditions are now forcing economic theorists and policy makers to change their

perspective, including adopting a broader understanding of progress. This includes a wider definition of 'capital', and there are now many new ways of measuring economic and social progress (which had historically been understood as the accumulation of capital.)

Table 1 The Five Different Forms of Capital	
Manufactured Capital	Equipment, Buildings, Infrastructure
Finance Capital	Monetary and Credit Systems, Financial Intermediation, Debt
Human Capital	Skills, Abilities, Education, Health
Social Capital	Families, Communities, Governments
Natural Capital	Natural Resources, Eco System Services, Beauty of Nature

Source: Porritt (2007)

In recent years, there is more discussion and emphasis on investing in human capital to promote economic growth than increasing the savings rate (the latter being the 18th century solution to for promote economic growth). Table 1 illustrates the five forms of capital, widely used in the business literature as well by those interested in social progress. For example, the World Bank includes Natural, Intangible (Human and Social) and Manufactured Capital in its measure of a nation's wealth.[iv] Measuring capital of any kind has always been problematic in economic theory; to know the value of a capital asset requires one to know the income stream produced by the asset. This is always uncertain. Regardless of these difficulties, one cannot ignore the importance of human and social capital to social progress.

The field of economic development has played an important role is guiding economics back to its roots. The application of neoclassical thinking and policies to the problems of the developing world has presented many cases of failure and human disasters on a large scale.   The international agencies with responsibility for 'assisting' some newly independent countries in the process of catching up to the advanced capitalist economies, (the World Bank and the International Monetary Fund), were more focused in the 1960s to 1980s period in enforcing 'macroeconomic equilibrium' (balancing government budgets, foreign trade and current accounts) than in raising the living standards of poor people. Too often, the policy prescription was to cut government spending on health and education to allow more money be paid back to international creditors.   Not surprisingly, the gap between the rich and poor countries continued to increase.[v]

Following the lead of Amartya Sen, and earlier Paul VI,[vi] sociologists, anthropologists and other social scientists interested in social analysis and development policy took a broader view of progress. As discussed in Clark and Kavanagh (2015), this movement led to the development of the Millennium Development Goals (MDGs), and more recently the Sustainable Development Goals (SDGs). It has also led to an increase in new measures of economic and social progress. Two key issues are worth emphasizing from our earlier study: (1) GDP is a poor measure of progress and (2) some of the new measures of social progress paint a very different picture of progress compared to GDP.

2. What is Wrong with Ireland's GDP?

It is import to state at the outset that we are not arguing against economic growth. Nor are we arguing that economic growth (leaving aside the issue of how it is defined) is somehow contrary to social progress. Further, we are not calling for the elimination of GDP, GNP, GNI or other measures of national income accounting. National income accounting is an important tool used by economists, policy makers and businesses in economic decision making, The development of accurate national income systems is a major goal of the United Nations Statistical Commission in their effort to promote economic development and reduce poverty around the world.

Economic growth produces many benefits besides the obvious one of raising living standards and making it possible to lift people out of material poverty. Further, what is counted in national income systems represents outcomes that reflect choices and values. We commonly measure national income by focusing on incomes paid (the income approach) or spending decisions (the expenditure approach)[vii]. In most cases, these reflect activities that generally promote well-being, and even though it is not always the case, it should not be our default position that economic growth is bad. Most of the activity captured in GDP, at least in advanced capitalist economies, consists of consumers spending their money to meet the needs of themselves, their families and their communities. Social and political factors play an important role, and all consumption, as Mary Douglas argued, is a form of social communication. We are also cognizant of the fact that the individual agency of the consumer, (in picking what they want and making their own choices), is an essential part of how people participate in our society, and consumers are promoting their own self determination and exercising human freedom. The problem with neoclassical economics isn't that it seeks to understand individual economic actions. The problem is that by looking at individual action as if it were autonomous (in isolation from the social institutions in which it takes place), the approach creates a distorted understanding of that action, and in the process, makes it less human.

Each person is a unique individual, necessarily connected to a community and to the planet. Our individual humanity includes three sets of relationships; us to ourselves, us to each other (our communities) and us to the planet.[viii] To understand humans, human happiness and in the context here, social progress, we need to go beyond the material reproduction of what is necessary for our material needs (as traditionally understood in Economics) and look at the social and environmental aspects of progress. There is growing body of evidence that indicates that well-being is more than just about rising income levels. Also, the social and environmental aspects of progress cannot be reduced to economic terms. For example, the environment cannot be reduced to a long list of externalities and missing property rights. While we agree that the economic theory of externalities is very helpful for understanding many environmental challenges, it cannot capture the entirety of the issue. Climate change includes many market failures, but it is not just the result of market failure, and cannot be fixed by merely eliminating market failures[ix]. While attempts to get prices to more fully reflect social costs and benefits will lead to more efficient economic decision making, the underlying problem behind climate change is the view that that the planet is merely a collection of resources to be used in a way that maximizes the utility of economic decision makers (even if we could somehow include future generations of economic actors). Further, while ambiguous property rights are often a cause of poor economic decision making and correcting these problems can be helpful in many situations, the environment cannot be reduced to private property. We believe that the view that only private property can be used efficiently, and that private property rights are sacrosanct and do not have corresponding responsibilities, is at the heart of our inability to address the environmental problems caused by climate change.

Similar problems arise when society is viewed as merely a collection of individuals trading as buyers and sellers, each driven solely by their own self-interest. Society and social institutions have a significant effect on economic behaviour and most economic activity is not individual, but is collective (working or consuming with others).   Adam Smith and Montesquieu understood well the role of social institutions, customs and governing institutions. These institutions add positive value and are not merely barriers to competitive markets.   When social institutions do become a barrier to economic and social progress, (which is not uncommon), it is frequently the result of cultural lag; the practice has out lived its serviceability, or the institution was instituted for the social control of one group by another (slavery is a useful example here). Following World War II, the advanced capitalist societies developed income support systems based on the model of one worker (man) per household, in full time employment, supporting a family. Changes in culture, technology and the rise of global trade have brought such models into question. Climate change presents a challenge to maintaining full employment, based on a high consumption, throw-away culture.

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We emphasise that the economy, society and environment are deeply interconnected. Yet, we think it is useful to look at the performance of these three dimensions separately in addition to combining them into one aggregate measure. We are not attempting to develop a new measure that carries all the weight and emphasis previously given to GDP. Aggregate measures should help direct us to specific aspects of social progress, not hide them. GDP became a barrier to good policy making when attention turned to how to make GDP grow (as a statistic) and when the focus shifted exclusively to some components of GDP. In the process, social and environmental factors that contribute to both social progress and economic growth are ignored because they are not captured in national income systems.

In Clark and Kavanagh, (2015, p. 9), we summarized some of the major problems with GDP as a measure of social progress as follows.

- GDP is a measure of market transactions and there are many aspects of social well-being that exist outside of market relationships, and thus do not get captured by GDP.
- As a measure of market transactions, GDP does not distinguish between 'good' and 'bad' goods and services; goods and services which are helpful and those which are harmful.
- Market failures, such as externalities, are the norm and not the exception, so the argument that market prices equate social and private costs and benefits is very weak.

Some commentators have noted that GDP often overvalues some activities and undervalues other activities. Purchasing extra locks because of a fear of burglary adds to GDP while taking care of a loved one who is sick does not. The finance that is at the service of production is an intermediate good, whereas finance that is pure speculation is a final good. Society is made better off with the former, and it is often debatable that the latter produces social well-being (speculation is a zero-sum game). The problem is not that GDP is not fully accurate, it is that it is biased towards spending, and there are many important contributions to social well-being that do not involve market transactions.

There are problems with GDP in the Irish context that make the case for alternative measures of social progress even stronger. Figures show that growth in GDP in 2015 was 26%. This is certainly a red flag that there is something wrong with GDP as a measure of economic and social performance. Table 2 shows Ireland's GDP pattern since 1995. At the beginning of the 'Celtic Tiger', Ireland was considered one of the four poorest countries in Europe, along with Greece, Spain and Portugal. By 2007, Ireland had the second highest GDP per capita of the EU12.

Table 2 GDP per Capita, US Dollars, EU12 Countries 1995-2015					
Country	1995	Country	2007	Country	2015
Luxembourg	39,413	Luxembourg	82,895	Luxembourg	102,214
Germany	**23,673**	**Ireland**	**46,750**	**Ireland**	**68,536**
Austria	23,588	Netherlands	43,472	Netherlands	49,610
Netherlands	23,094	Austria	39,152	Austria	49,480
Belgium	22,517	Finland	37,689	**Germany**	**48,037**
Italy	22,272	**Germany**	**37,010**	Belgium	45,910
France	20,860	Belgium	36,871	Finland	42,229
Finland	19,545	France	34,177	France	41,038
Ireland	**18,961**	Italy	33,781	Italy	37,217
Spain	16,210	Spain	32,578	Spain	34,741
Greece	15,399	Greece	29,280	Portugal	29,718
Portugal	14,376	Portugal	25,696	Greece	26,289
Source: OECD					

In 1995, Ireland's GDP per capita was nearly 20% below second-placed Germany, but by 2007 Ireland was 26% above Germany. By 2015, Ireland still ranks in 2nd place, and is 42% above Germany in terms of GDP per capita, with a $20,000 advantage. It has been argued that Ireland has a higher cost of living. Table 3 provides a slightly different perspective on the time period. It shows GDP per capita (PPS) and Actual Household Consumption (how much households actually spend). Ireland's rank falls to 4th place when we adjust for the cost of living and 8th place when we consider household consumption.

| Table 3			
GDP per Capita Purchasing Power Standard and Actual Household Consumption, EU12 Countries, 2015			
Country	**GDP per Capita PPS**	**Country**	**Actual Household Consumption (US$)**
Luxembourg	67,900	Luxembourg	34,378
Austria	33,200	Finland	24,663
Netherlands	32,600	Netherlands	23,288
Ireland	**32,500**	Austria	23,229
Germany	32,000	Germany	23,175
Belgium	30,500	Belgium	22,731
Finland	28,700	France	22,422
France	27,800	**Ireland**	**22,330**
Italy	25,200	Italy	18,498
Spain	24,500	Spain	15,277
Greece*	19,500	Greece	13,339
Portugal	19,400	Portugal	12,567
Source: Eurostat			

So, why does Ireland's GDP increase by 26% in 2015?

In the 1970s, the US typically focused on GNP as a measure of growth. GNP measures the income of a country's residents. The focus in Europe was predominantly on using GDP. For the US, there wasn't a significant difference, and eventually they made the switch to GDP. Yet for some countries, there is often a difference, and for Ireland this difference began to expand in the 1980s. In recent times, Ireland's GNP was 80% of its GDP. The source of much of this difference is the use of transfer pricing by multinational corporations. Any country involved in production in more than one country can shift the profits earned to the country in the supply chain with the lowest tax rate. Ireland's competitiveness strategy was to use a low corporate tax rates (about one third of the US) to attract businesses to Ireland. In 2015, actions of a few companies lead to a massive increase in recorded exports (€75 billion), partly from Apple locating their intellectual property assets to Dublin (and having its other divisions pay for the use of these assets), thus allowing them to book their profits in Ireland. Added to this were a few tax inversions of US companies. The results are a significant increase in GDP, but hardly, we argue, a similar increase in social well-being.

Figure 1 provides some key insights into the relationship between GDP and Poverty Rates. Generally, rapid GDP increases bring about significant decreases in poverty rates, part of the 'rising tide lifting all boats' effect. Yet, the figure shows that since

2012, GDP has increased at a steady rate (even before the 26% figure for 2015) and yet, Irish poverty rates have remained stubbornly steady.

**Figure 1
Ireland's Poverty and GDP Growth Rates, 2010-2015**
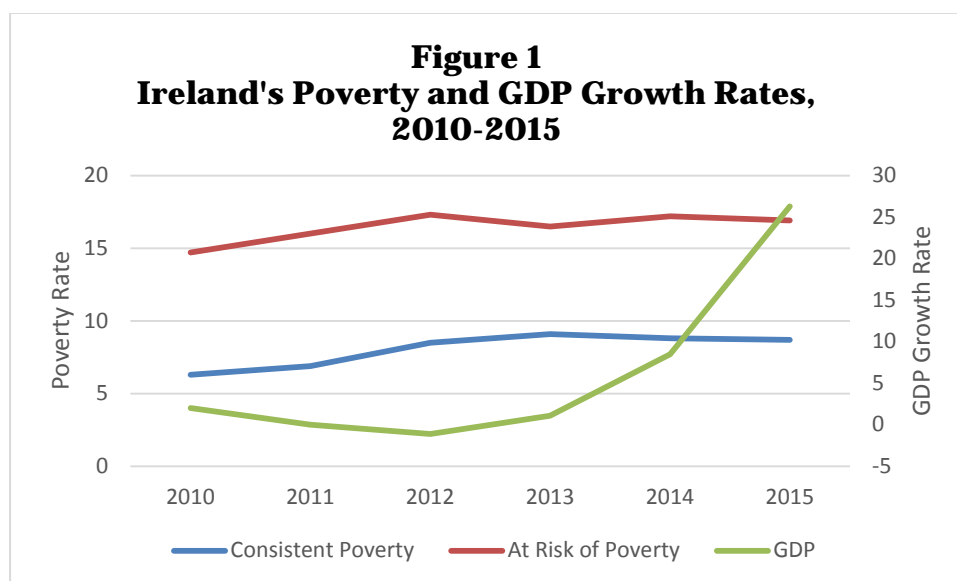
Source: OECD

There is greater interest in alternative measures of well-being and quality of life in recent years. We believe this reflects the now widely held view that GDP does not capture enough of the economic, social and environmental costs and benefits that are important for social progress. Table 4 provides a sample of some of the social progress and popular quality of life indexes[x].

The table shows that while Belgium, Italy, Spain, Portugal and Greece tend to be close to their GDP ranking (note that except for Belgium, all these countries at ranked near the bottom), the countries ranked near the top in GDP have a very different and varied pattern on all other indexes. Luxembourg in particular, shows mixed results for different indicators. We argue that it matters which index is being used to provide bench-marking for public policy guidance. A country that uses the Social Progress Imperative to aid policy-making might consider Spain a good place to examine for guidance on how to improve. Clearly, this would not be the case if GDP were used.

Table 4

EU12 Countries Ranked by GDP and Quality-of-Life/Social Progress Indexes

Index

GDP per capita, PPP (2015, current international $)	Social Progress Imperative (SPI)	OECD Better Life Index (BLI)	Human Development Index (HDI)	World Happiness (WHI)	Sustainable Development Goals Index (SDGI)
Luxembourg	Finland	Finland	Netherlands	Finland	Finland
Ireland	Spain	Netherlands	Germany	Netherlands	Germany
Netherlands	Ireland	Luxembourg	Ireland	Austria	Austria
Austria	Austria	Germany	Luxembourg	Germany	Netherlands
Germany	Germany	Belgium	Belgium	Belgium	France
Belgium	Belgium	Austria	France	Ireland	Belgium
Finland	France	Ireland	Austria	Luxembourg	Ireland
France	Netherlands	France	Finland	France	Luxembourg
Italy	Italy	Spain	Spain	Spain	Spain
Spain	Portugal	Italy	Italy	Italy	Portugal
Portugal	Greece	Portugal	Greece	Portugal	Italy
Greece	*Luxembourg	Greece	Portugal	Greece	Greece

Source: Seery (2017)

*Missing basic human needs dimension of SPI; cannot be counted within the ranking.

3. A Sustainable Progress Index

In 1996, we presented an index of social progress for Ireland. We tracked social progress against its performance in previous years. The idea was to bench-mark Ireland against itself. Each indicator was scored between 0 and 100 and aggregated into a single index. A score below 100 meant that Ireland had performed better in a previous year on that indicator, and the implication was that improvement could be achieved again. In 2015, we updated and revised the index. However, it can be argued that with Ireland's participation in the EU, the method of benchmarking our performance needs to be reconsidered.   For this reason, we focus on the EU15 countries. We are interested in examining the challenges Ireland faces in achieving the SDGs *relative* to these countries, over time. These 15 countries are part of the EU region since 1995, and are classified by the OECD as 'high income countries'.

Data

Data collection for the analysis was far-ranging, from official and scientific data sources, including large institutions like the OECD and United Nations, to non-governmental organisations such as Transparency International.

In constructing our Sustainable Progress Index, we decided, as far as possible, to use similar indicators to SDSN (2016). However, their analysis focuses on just one year – the most recent available. We are also interested here in tracking the performance of the SDGs over time. We therefore attempted to gather relevant data for each indicator, for each EU15 country, and for each year 2000 to 2014 (or latest year available). Clearly, we ran into some problems. Some SDG data has only become available in recent years. Particularly important are indicators relating to corruption, safety and well-being, where reliable data is only available from 2010 onwards.

There is also a lack of comparable data for some of the environment indicators, with missing values for many countries over the period. Where data is not available, we try to establish how the countries have performed relative to a particular year where data is available, for example, 2004 or 2008.

We also follow the SDSN, and replace some of the usual OECD indicators (such as the incidence of extreme poverty, the mortality rate of under 5s), with variables that better reflect the high income countries, and also, to allow for greater variance in the data.

It was necessary for some SDGs to use different indicators that capture the theme of the SDG but are not official SDG indicators and were not used by the SDSN (2016). For example, we use indicators of alcohol consumption, suicide rate and adolescent fertility rate to reflect SDG3 in earlier years. We use household debt in SDG10, as we think it is important to capture the dramatic change in this indicator for some

countries. Other indicators we examined to complement the theme of some SDGs include the extent of low paid workers (as % of population) and the Not-in-Education, Employment, or Training (NEET) rate. For each SDG, we evaluated data sources available and consider the trade-offs between the indicator availability over time and its coverage by country.

The most recent year (2014 for many indicators) allows us to include between one and 4 indicators per SDG, and this allows us examine Ireland's performance on all 17 SDGs. However, for earlier years, there is no comparable data for some SDGs (for example, SDG 6). Table 5 below lists the set of indicators we examined to capture the SDGs for the EU15 countries. We track the performance of 35 indictors across the 17 SDGs.

Method

Our aim is to compare Ireland's performance to other countries at a similar level of economic development. We follow the method used by SDSN (2016). The main benefit of the approach is that it allows us to benchmark Ireland against its peers, at individual indicator level, SDG level and aggregate index level.

Each indicator is first assigned a percentile rank. A percentile rank of 100 is assigned to the top score, and 0 to the bottom score. For clarity and ease of interpretation, all indicators are measured so that a higher score on the indicator corresponds to a higher overall SDG score. We then aggregate the percentile rank of each indicator to capture each SDG value for each country. This means that each country has an SDG score for each of the 17 goals, in each year (depending on data availability).

Each indicator in the SDG value (and under each goal) is given equal weight, following the UN's (2015, paragraph 5) commitment to treat all SDGs equally as an 'integrated and indivisible' set of goals.

Table 5
List of Indicators Tracked for Use in the SDGs

SDG	Description	Source
1	Poverty Rate; poverty line 50%	OECD
2	Prevalence of Obesity, BMI>30 (% of adult population	WHO
	Cereal yield (kg/ha)	World Bank
3	Life expectancy at birth, total, years	World Bank
	Physician density (per 1,000 people)	WHO
	Subjective Wellbeing (average ladder score)	Helliwell et al (2015)
	Alcohol Consumption (litres per capita)	OECD
	Adolescent Fertility Rate (births per 1000, age15-19)	World Bank
	Suicide Rate	OECD
4	Population aged 25-64 with tertiary education (%)	OECD
	PISA Score	OECD
	NEET rate (not in education, employment or training)	OECD
5	Proportion of seats held by women in national parliaments (%)	World Bank
	Gender Wage Gap (% of male median wages)	OECD
6	Water Stress Score	Gassert et al (2013)
7	Alternative and nuclear energy (% of total energy use)	World Bank
8	Unemployment (% of total labour force)	OECD and World Bank
	Real GDP Growth (%)	OECD and World Bank
	Low Pay (share of workers earning less than two-thirds of median wages, %)	OECD and Eurostat
9	R&D Expenditure, % of GDP	OECD
	Internet Access	OECD
10	GINI Index	OECD
	Social Justice Index	Social Inclusion Monitor Group
	Household Debt, % NDI	OECD
11	Mean annual concentration of PM2.5 in urban areas	World Bank
12	Municipal Waste Generated per capita	OECD
13	CO2 emissions per capita (tCO2/capita)	World Bank
	Total Oil Use per capita	World Bank
14	Marine Protected areas (% of total territorial area)	World Bank and Butchart et al (2015)
15	Percentage of land covered by forestry	World Bank
	Marine Territorial Protected areas (% of total territorial area)	World Bank and Butchart et al (2015)
16	Corruption Index	Transparency International
	Homicides per 100,000 population	UNDP
	Prison population per 100,000 population	UNDP
17	Net ODI as % of GNI	OECD

Aggregating into 3 Dimensions

In order to track SDG achievement in a simple and easy to follow way, we aggregate the 17 SDGs into three indexes, by broad dimension: economy, environment and society. Table 6 shows the SDGs used in each of the three indexes.

Table 6
SDGS used in the 3 SDG Indexes

SDG Index	SDG included
Economy	8, 9
Society	1, 2, 3, 4, 5, 10, 16, 17,
Environment	6, 7, 11, 12, 13, 14, 15

It could be argued that some of the social SDGs should be included under the economy dimension and vice versa. However, as we emphasised earlier, the three dimensions are clearly interdependent and interlinked. Our aim here is to present a preliminary and simple way to understand Ireland's relative performance on the SDGs[xi].

Results

First, we present a snapshot of how Ireland has performed on each SDG over the years. Next, we provide the results of the 3 indexes by broad dimension. Finally, our Sustainable Progress Index attempts to capture, in one single measure, the aggregate SDG performance of Ireland relative to the other 14 countries for the latest year.

Economy Indicators and SDGs: Key Trends and Patterns
SDG8

Ireland's growth recorded has been well documented over the past 10 years. The SDG indicator score clearly reflects this record. Ireland scores highly on the GDP growth indicator in the period up to 2006 when it was ranked number 1. The score falls from 2007 onwards but recover in the following years. In 2014, Ireland's score on this indicator was at the top, giving it a ranking of 1.

The unemployment indicator fairs less well. While it had the top score in 2004, rising unemployment figures means we see the score falling significantly throughout the recessionary period. The value of the indicator has picked up in 2012-14 period. In 2014, the indicator has a value of 28.6. Regarding the rank score, Ireland is ranked

11 out of the 15 in 2014. Spain and Portugal are at the bottom of the table. The best ranked countries are Germany and Austria in 2014.

Low pay is an indicator that we examined to capture the idea of quality work in the economy, although we recognise that as of yet, no agreed measure of decent work has been developed for use in the SDGs. Comparable data is available for 2006, 2010 and 2014. Approx. 21% of all employees in Ireland are considered low-paid, according to Eurostat. This puts Ireland at the bottom of the table with the UK and Germany for this indicator. The pattern has not changed much since 2006. Sweden, Belgium and Finland score at the top in this category.

SDG 8 Rank: Overall, Ireland's performance on SDG 8 has fallen from 2006 and its peak of number 1 to number 4 out of 15 countries in 2014. Importantly, when we include the indicator for decent work, the ranking on this SDG falls to 7.

SDG9

Ireland's expenditure on R&D as a percentage of GDP has fluctuated between 1 and 1.5% since 2003. This is below many of the EU 15 countries. Ireland's indicator score therefore fluctuated between 21.5 and 28.0 throughout the period. The score has increased to 38.5 from 2010 and has remained steady since. The countries that score highest on this indicator are Finland, Sweden, Denmark and Austria, who average about 3% of GDP expenditure on R&D. The data suggest that although the absolute level of expenditure has increased since 2010, Ireland's performance implies its relative ranking has improved only slightly from 11 in 2006 to 10 in 2014.

We included an indicator of internet access in this SDG. Comparable data is available from 2006. Luxembourg, Netherlands and Denmark score highest on this indicator. Ireland's actual performance has improved on this indicator since 2006, but the relative ranking remains unchanged at 10, from 2006 to 2014.

SDG 9 Rank: Ireland's performance on SDG 9 has not changed – it is ranked 11 in 2006 and in 2014.

Environment Indicators and SDGs: Trends and Patterns
SDG6

Following SDSN (2016), we use the Water Stress Score proposed by Gassert et al (2013) for SDG6. This indicator is only available for the most recent years. We are therefore unable to compare it to the earlier period. In 2013 (latest year), Ireland scored a value of 35.8 on this SDG, well below its EU peers. The highest ranked countries on this SDG are Austria, Denmark and Sweden. The lowest ranked countries are Spain and Italy.

SDG 6 Rank: Ireland is ranked 10 out 15 countries in the latest available year when comparable data is available.

SDG7

Ireland does not score well on alternative energy sources, which is a key indicator used in SDG7. It is ranked 13 out of 15 countries in 2014. This has not changed much since 2000 when Ireland was ranked 14. There has been little change during the interim years for this indicator.

In our analysis, we also examined related indicators. Ireland fared slightly better on Renewable Energy Consumption (as a % of final energy consumed). The ranking was 10, which did not change over the interim years. The best performing countries are Sweden, Finland and Austria.

Ireland is ranked 9 on the Renewable Electricity Output (% of Total Electricity Output) indicator. Sweden, Austria and Denmark are the top countries. Luxembourg and Netherlands perform the worst. Ireland's performance has improved on this indicator over the years, from a rank of 13 in 2000.

SDG 7 Rank: For comparability, and following the SDSN (2016), we use the alternative energy indicator for SDG 7. Ireland is ranked 13 out of 15 on this SDG in 2014, up from 14.

SDG11

The Air Pollution in Urban Areas indicator is used as the sole measure of our SDG 11. Data is available for the year 2000, and then from 2010-2015. The raw data indicates Ireland scores between 78.6 and 85.5, with only Sweden, Finland and Portugal displaying higher values. Over time however, Ireland's rank of 4 remains unchanged from 2000 to 2015.

SDG 11 Rank: Ireland ranks number 4 in 2014, unchanged from 2000.

SDG12

The two indicators used in this SDG are municipal waste generated per capita and waste water treated (the latter is available only for 2014). So, for comparison over time, only the municipal waste generated indicator is used. The raw data shows, as expected, a rise in the indicator, particularly up to the 2008 period. From 2003 to 2007, Ireland was the worst performing country on this indicator. The situation has improved somewhat since then, with the score of 21.5 giving it a rank of 12 out of 15 in 2012.

When we include the % of waste water treated, this gives us two indicators for this SDG which can be used to compare achievement in the most recent year. The score for Ireland rises to 32.15 (Ireland's performance on waste water treatment is about average). The Netherlands, UK, and Germany score the highest on this indicator.

SDG 12 Rank: With one indicator to compare from 2000-2012, Ireland's performance was 11 in 2000, 0 from 2003-2007, and 12 in 2012. Two indicators for this SDG give Ireland a rank of 13 in the most recent year.

SDG13

Ireland's CO_2 emissions per capita have declined over the period 2000 to 2014. This is reflected in the improved score which has risen from 14.3 to 35.8. (It was 28.6 in 2009). If we use this indicator for SDG 13, it shows that Ireland's ranking over the period has risen from 13 out of 15 to 10 out of 15. Portugal, Sweden and France are the high ranking countries on this SDG, respectively. Interestingly, if instead of CO_2 emissions, we use total GHG emissions, Ireland's performance is not as impressive relatively. Indeed, while the raw data show that GHG emissions per capita has fallen, (from approx. 18.2 tonnes per capita to 12.8 tonnes per capita in 2012), this is actually the second worst performance during the period for the EU 15 countries. Only Luxembourg has a worse record in reducing its GHG emissions, relative to its' peers. Sweden and Portugal remain the highest ranking scores using this indicator.

SDG 13 Rank: Ranking using CO_2 emissions shows an improvement from from 13 in 2000 to 10 in 2014.

SDG14

Ireland is ranked just 10 out of 13 countries in 2000 (excluding Austria and Luxembourg). In 2014, when comparable data is available for countries, Ireland's SDG score remains unchanged, and the ranking is still 10. In the more robust Butchart (2015) data, Ireland's performance is does less well, at rank 11.

SDG 14 Rank: Ireland's SDG rank is unchanged from 2010; the rank is 10 of 13 countries.

SDG15

The Butchart et al (2015) data ranks Ireland the worst of the 15 countries for protected territorial region as % of all land in 2014. This is the latest available data. However, when comparing the SDG over time, we must use the World Bank data. This data shows that Ireland's performance has not improved significantly relative to its peers. It was ranked last in 2000 and second last in 2014, although the raw data show just an increase from 10% to just over 14% over the full time period.

For the forestry indicator, Ireland's performance is also poor. Ireland's SDG performance is ranked last in every year for which data is available. The OECD raw data show that the amount of land dedicated to forestry increased from approx. 9.3% to just under 11% over the full 15 year period[xii].

SDG 15 Rank: Using comparable OECD data for 2 indicators suggests Ireland's performance on this indicator is poor at joint second last in 2014, last in 2000.

Social Indicators and SDGs: Trends and Patterns
SDG1

Various measures of poverty exist, but the problem for our analysis is getting coverage for all countries. We decided to consider both the poverty gap and poverty rates, but even this data is not available for all countries for each year.

Reliable and comparable poverty rates data are available for 2011-2014 for each country. This data shows a slight improvement over the 2011-13 period with Ireland's rank increasing from 8 to 7.

The poverty gap allows us to get a sense of how performance on this indicator has changed since 2004 when data is available for each of the 15 countries. The raw data suggest the poverty gap has increased in Ireland from 2004 to 2013, as has the rank, from joint 2nd to 9th place. Finland and Luxembourg scored the highest on this SDG.

SDG 1 Rank: Performance on this SDG has dis-improved from 2004 to 2013, to rank 9 of EU 15.

SDG2

The issue of obesity in Ireland has received much attention in recent years. The data show that Ireland's obesity score has declined over the period 2000 to 2014, from rank 10 to rank 14 in 2014, when only the UK was ranked lower.

Ireland performs well on the cereal yield indicator, and continues to rank well relative to the EU countries. It was second best in 2014, up from third in 2004.

SDG 2 Rank: Using the same key indicators used by the SDSN (2016) shows that the SDG2 score has dis-improved. Ireland's rank falls slightly from 2nd to 3rd, 2004 to 2014.

SDG3

The SDSN (2016) use only 3 indicators to capture this SDG. However, coverage of these 3 indicators over time for each country is problematic. Hence, we use additional indicators in constructing our SDG to capture trends over time. We examined a range of indicators, including suicide rates, cancer deaths, alcohol consumption, health expenditure as a percentage of GDP and per capita, hospital beds per 1000, and adolescent fertility rates. Ireland's performance on some indicators has worsened (e.g. adolescent fertility rates, hospital beds per 1000), etc., while other indicators have improved slightly (cancer deaths, life expectancy, alcohol consumption).

We decide to use 4 indicators to compare countries from 2004 to 2014; alcohol consumption, suicide rate, adolescent fertility rate and life expectancy.

We also construct the SDSN version of SDG3 for 2014 only, using their suggested 3 key indicators: wellbeing, life expectancy and physician density in 2014. The wellbeing data is increasingly being used for comparison in analyses of SDGs.

SDG 3 Rank: Ireland's rank has improved from last to second last when we compare across 4 indicators for 2004-2014. The rank is 11 when we use the SDSN version of the SDG in 2014.

SDG4

Ireland does well on the indicator of 3rd level tertiary qualifications in the population. It ranks at 3 in 2014. Ireland also performs consistently well on the PISA indicator and its score is ranked at 2 in 2014, which has improved from rank 4 in 2006. The score on the NEET indicator is less impressive. This indicator score was particularly low during the period 2008-2012 (between 20 and 28), but has improved since then

with a score in 2014 of 35.8, which gives Ireland a rank of 10. Denmark and Germany score the highest on this indicator.

SDG 4 Rank: Ireland's score on SDG 4 has improved, driven in no small part by the PISA and 3rd level indicators. The rank on this score improved over the 2004-14 period, from 7 to joint 3rd.

SDG5

Ireland's proportion of female representatives in national parliament has increased over the years it now stands at 22 in 2016, compared to 12 in 2000. However, relative to other countries, Ireland is ranked 14 in 2016, compared to 2000 and 2004, when it was ranked 12 and 13 respectively.

Luxembourg scores highest on the wage gap indicator. Ireland's score of 71.5 gives it a ranking of 5 in 2012, which has improved since 2006 when it was ranked 9.

SDG 5 Rank: Overall, there is an improvement in SDG5 for Ireland from 2006 to the latest year of data available. The score increases from 28.3 to 39.3, and the ranking from 13 to 11.

SDG10:

Comparable data for the GINI coefficient for all 15 countries is only available for 2012. Ireland is ranked 9 of 15.

We considered Household Debt as an indicator in this SDG. Ireland's household debt as a % of NDI has fallen, as it has in Denmark (which recorded the highest rates) and the Netherlands. Nevertheless, Ireland's rank does not change much: while the absolute debt level has declined, it remains high and Ireland ranks 13 out of the 15 in 2014, with the ranking unchanged over years.

For the Social Justice Index, data is available for every country from 2008. Sweden, Finland and Denmark are the top ranked countries. Ireland's score is 28.5, and is stable from 2008 to 2014. The rank is 11 of 15.

SDG 10 Rank: We can review SDG10 only for the most recent year for which data on 3 indicators is available. This shows Ireland with a rank of 11 on this SDG.

SDG16

Ireland's corruption score is about mid-way in the rankings. It rose during the 2007-10 period, but declined in the later years so that by 2014, the value of the indicator at

42.8 implies a rank of 9. The countries performing best on this indicator are Denmark and Finland who consistently rank at the top end, while the worst countries on this indicator are Italy, and Greece.

Comparable data on the prison population indicator are only available from 2013 onwards and show that Ireland's score of just over 64 gives it a rank of 6. Countries that perform well are Finland, Sweden and Denmark. For homicides, Ireland's rank is 7 in 2011, with Luxembourg and Austria scoring highest on this indicator.

SDG 16 Rank: **Results indicate a slight improvement in the ranking from 10 to 9 over the period 2000 to 2014.**

SDG17

Ireland's performance on SDG 17 has fluctuated over the period[xiii]. The % of GNI devoted to ODA has been between 0.3% (in 2000) to a high of 0.59% in 2008 when it was ranked 5, up from rank of 9 in 2000. Relative to the EU15, Ireland ranks at 9 in 2014. The score has fallen from 42.8 to 28.5.

SDG 17 Rank: **Rank has declined from 5 to 9 over the 2000-14 period.**

The 3 Indexes – by Broad Dimension

The Economy SDG Index
Table 7 presents the ranking of the Economy SDG Index. It includes SDG 8 and 9. The Economy SDG reflects well the economic performance of Ireland throughout the period. The SDG score slips from 2006 to 2010, recovering in the period to 2014. The country ranking sees Ireland's performance change from 6 to 10 over the period. The unemployment indicator is clearly impacting on this result.

Table 7
The Economy SDG Index – Ranking by Country

Country	2006	2010	2014 SDG Value	2014
Denmark	1	6	69.63	5
Sweden	2	1	73.18	1.5
Netherlands	3	7	67.85	6
Luxembourg	4	3	71.40	3.5
Finland	5	4	53.58	9
Ireland	6	11	50.00	10
Austria	7	5	60.68	7
Germany	8	2	73.18	1.5
United Kingdom	9	9	71.40	3.5
Belgium	10	8	57.10	8
Spain	11	14	21.43	12
France	12	10	41.08	11
Greece	13	15	5.33	15
Italy	14	12	17.83	14
Portugal	15	13	17.85	13

The Environment SDG Index

For the Environment SDG Index, 7 SDGs are aggregated to arrive at the ranking in 2014 (final column in Table 8). This last column provides the best picture of how each country currently stands on the overall Environment SDG. Critically, we argue, it includes the water stress indicator, and the waste water treated indicator. Both of these indicators have sparse data coverage in earlier years.

In columns 2 and 3 however, only the 5 SDGs for which comparative data is available is used. The Table highlights that Ireland performs poorly on the Environment SDG throughout the full period. Despite some improvement in absolute values, Ireland is ranked last in 2014; suggesting its relative ranking is worse than in 2000. Overall, we can see that the Environment SDG Index suggests Ireland is faced with significant challenges in achieving progress on some of the SDGs.

Table 8
The Environment SDG – Ranking by Country

Country	2000 (5 SDGS)	2014 (5 SDGs)	2014 SDG (Value 7 SDGs	2014 (7 SDGs Values)
Sweden	1	2	71.59	1
Finland	2	5	58.50	4
France	3	1	66.67	2
Austria	4	7	54.06	7
Spain	5	3	55.93	6
Portugal	6	4	46.42	9
Germany	7	6	60.22	3
Denmark	8	8	57.98	5
Italy	9	12	35.72	14
United Kingdom	10	9	53.55	8
Belgium	11	10	37.76	12
Greece	12	11	37.41	13
Netherlands	13	15	43.04	10
Ireland	14	13	33.68	15
Luxembourg	15	14	39.44	11

The Society SDG Index

The last column in Table 9 includes all 8 SDGs to reflect society performance in 2014. It shows Ireland is ranked 9 out of the 15 countries (recall this column includes indicators on well-being, etc.). Columns 2 and 3 can be compared to each other over time (but cannot be compared directly to column 5): these are constructed using the same indicators, and include 7 SDGs (recall that SDG10 is only available for the most recent years). There are also additional indicators we include which we think are relevant for some SDGs. This shows that Ireland's performance on the society index has dis-improved from 2004 to 2014, with a fall in the relative rank from 7 to 9.

Table 9
The Society SDG Index – Ranking by Country

Country	2004 (7 SDGs)	2014 (7 SDGs)	2014 SDG Value (8 SDGs)	2014 (8 SDGs)
Denmark	1	1	77.66	1
Sweden	2	2	73.21	2
Netherlands	3	5	66.50	4
Finland	4	4	68.58	3
Belgium	5	7	58.78	6
Luxembourg	6	3	59.08	5
Ireland	7	9	46.71	9
France	8	10	45.08	10
Germany	9	6	56.24	7
Austria	10	11	49.84	8
United Kingdom	11	8	41.65	11
Portugal	12	12	28.55	13
Spain	13	14	28.25	14
Italy	14	13	29.01	12
Greece	15	15	19.51	15

Table 7-9 also sheds light on the relative differences in performance of the three dimensions. The value of the scores in 2014 indicate that the economy scores best at 50, society is second at 46.71, while the environment dimension scores lowest with a value of 39.29.

The Aggregate Sustainable Progress Index

Table 10 shows the values and country ranking of our aggregate Sustainable Progress Index (SPI) in the latest available year. It is an attempt to provide a simple and clear index that captures how Ireland is currently performing on the SDGs. Ireland's overall ranking is 11 out of the 15 European countries. Our results strongly suggest that focusing exclusively on GDP as a measure of progress is clearly misleading

Table 10

Sustainable Progress Index – Ranking by Country

Country	SPI Score 2014	Rank 2014
Sweden	72.66	1
Denmark	68.42	2
Germany	63.21	3
Finland	60.22	4
Netherlands	59.13	5
Luxembourg	56.64	6
United Kingdom	55.53	**7**
Austria	54.86	8
Belgium	51.21	9
France	50.94	10
Ireland	**43.46**	**11**
Spain	35.20	12
Portugal	30.94	13
Italy	27.52	14
Greece	20.75	15

4. Conclusion

When Bill Clinton was running for President in 1992, his campaign famously had a sign: 'it's the economy stupid'. The underlying message was that the key issue was economic growth (growth in GDP). Achievement of economic growth implied either: (i) all other problems disappeared; or (ii) the country would have greater capacity to address the other problems. In the 21st century, we now know that the economy-only approach does not work: it does not work in addressing social and environmental problems, and ironically, it does not work in improving the performance of the economy. Various studies have shown that in developed countries, increasing GDP does not automatically lead to improved lives and well-being. Further, some barriers to improving the performance of the economy are social problems, for example, high inequality and gender discrimination, and the environmental challenges created by climate change (drastic and unpredictable changes in weather). If climate change is not addressed, and if we do not develop a new attitude towards the planet, the economy and society will decline. Focusing only on economic growth will be ineffective in addressing many of Ireland's problems. Focusing on economic growth, and excluding social and environmental issues, is futile.

It seems obvious, but we emphasise the economy, society and the environment dimensions are interconnected. Performance in each area must be examined if we are to adequately assess Ireland's progress. It is in this context that we have developed our Sustainable Progress Index. We are not attempting to replace GDP with a new all-inclusive index. Increases or decreases in the index should not be the conclusion of a debate. Rather, we hope the index will be an entry point; the starting point of a discussion, always leading to more detailed analysis of the indicators underpinning the index. And critically, there should be greater discussion about how the dimensions and indicators are interconnected.

The goal of the SDGs is to change the perspective of public policy and the purpose of including so many indicators is to bring an evidenced based approach to policy. In the past, we have compared Ireland's performance to its performance in earlier years (Clark and Kavanagh 1996, 2015). Here we compare Ireland to its EU peers. Both comparisons are important.

In this report, the aim was to measure SDG achievement over time for the EU15. This is useful because it allows us to think about how some countries have achieved better outcomes. An example is helpful. One of the indicators for SDG5 is the percentage of females in national parliaments. Since 2000, Ireland's performance has improved on this indicator, from 12% to 22% in 2016. Although this represents an 83% increase in the raw data, Ireland's relative ranking actually declined, from 12 to 14, over the period. This raises some important questions. Why does Ireland lag behind EU countries in female representation? What are the barriers that are not present in other countries? What policies can be adopted to lower these barriers? Our index does not answer these questions, but rather, seeks to raise them. Answers must be

sought from citizen political involvement. Our hope is that we have provided a tool to assist in more engagement on these issues.

Finally, our analysis has shown the difficulty in tracking the SDGs comprehensively over time due to data availability. In particular, for earlier years, some of the important and newer issues in the SDG agenda are not measured adequately. Clearly, the SDGs require further work, including improved data reporting (SDSN, 2015). Robust data collection will be needed to monitor the SDGs on an ongoing basis.

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[i] To give an example: Smith, in keeping with his time, viewed the most important property a man owns is his reputation, hardly a material form of wealth.

[ii] Montesquieu seminal work was *The Spirit of the Laws* 1748.

[iii] For Smith climate is an occasionally mentioned natural limit on economic activity.

[iv] See *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium,* (2011).

[v] According to the 1999 Human Development Report the gap between rich and poor countries was 35 to 1 in 1950, rising to 72 to 1 by 1992.

[vi] *Popular Progressio* (1966), especially its call for integral human development. See Clark (2012).

[vii] Students of a macroeconomics principles class will note we have omitted the value-added approach here.

[viii] Each can be seen in theological terms as part of our relationship with God. Theologically, the last part is expanding our common understanding of the *imago dei.* It emphasizes the being created part of "being created in the image and likeness of God".

ix A market failure is when the market mechanism (the price system) does not lead to optimal results. Externalities are one type of market failure. An externality is when someone is affected by a market transaction who is not a party to the transaction (buyer or seller). A good example of an externality is second hand cigarette smoke. While we can imagine the smoker and the cigarette producer fully measuring the costs and benefits of producing and consuming cigarettes, and thus meeting an efficient price which equates private cost and benefit, the fact that others will be affected by the consumption of the cigarette means that the social costs and benefits will differ from the private costs and benefits.

x See also Doyle et al (2016) for a good discussion of key concepts and measurement challenges in adjusting competitiveness for sustainability. This project proposes to adjust the Global Competitiveness Index for environmental and social sustainability.

xi The method of aggregating SDGs into a single dimension can have implications for the overall ranking. As a result, we experiment with two different aggregation methods: the arithmetic mean and geometric mean. There was no difference in our ranking of countries when we used ranking on the geometric mean rather than the arithmetic mean. We note however, that the UNDP has changed its method of aggregation from arithmetic mean to geometric mean in 2010.

xii The Hansen et al (2013) data is used by the SDSN (2016). This provides data on the annual change in forestry but it is not available for comparison over time. Using this data presents a slightly more positive picture for Ireland on this indicator in the latest year, relative to the EU countries.

xiii It is important to note that many important themes of SDG17 are ignored in using just one indicator here, including issues such as the quality of ODA, distribution, more inclusive and global partnership, etc.

Social Justice Ireland is an independent think-tank and justice advocacy organisation of that advances the lives of people and communities through providing independent social analysis and effective policy development to create a sustainable future for every member of society and for societies as a whole.