Understanding Happiness

A CAGE Policy Report

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FOREWORD

For centuries happiness was a concern exclusively of the humanities. In the past half century, however, happiness has moved into the domain of social science and has engendered an ever-expanding body of research, of which the three pioneering papers in this report are an example. The introduction and executive summary that follows gives an excellent entrée to these papers. I would like to focus, therefore, on a critical issue: Happiness is now being considered as a potential guide to public policy; is this desirable or not?

The data on happiness come from self-reports of individuals' feelings of well-being, and each respondent is free to define happiness as she or he sees it. It would be reasonable to suppose, therefore, that combining the answers of respondents to obtain, say, an average societal value, would be meaningless. But, in fact, there is now substantial agreement among most social scientists that such averages are meaningful. A major reason for this consensus is that people worldwide respond quite similarly when asked what is important for their happiness. It is the personal concerns that take up most of the time in most people's lives everywhere—making a living, family, health, and work—that are most important for happiness. These are the things they care most about, and which they think they have some ability to control. A second reason happiness data are meaningful is due to a line of research initiated by Andrew Oswald, one of the current report's authors. It turns out that the same relationships between happiness and a variety of life circumstances are found in country after country. Among those who are significantly less happy everywhere are the unemployed, those living alone, and people in poor health.

The evidence is now well established that happiness data give a quite different evaluation of well-being than the measure most commonly used these days, gross domestic product per capita (GDP). What are the reasons for thinking happiness is more meaningful? First, and foremost, happiness tells us how well a society satisfies the concerns of people's everyday life; in contrast, GDP is limited to a single economic dimension, the per capita output of goods and services. Second, in the case of

happiness, the evaluation of well-being is made by those whose lives are being assessed, rather than outside observers, so-called experts. Third, happiness, unlike GDP, is a measure with which most people can identify. And, finally, happiness is a measure in which each person has a vote, but only one vote. If happiness were to become a leading measure of society's well-being, public policy might perhaps be moved in a direction more meaningful to people's lives.

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INTRODUCTION

What should citizens expect of their governments? This question, always fundamental, has gained still more salience after the evidence of voter discontent provided by the European referendum, the Trump victory and other electoral manifestations of what is conveniently labelled populism. In the UK and US these voting upsets have occurred in an economic context that would normally have been expected to leave the electorate contented: low unemployment, a respectable rate of economic growth, and low inflation.

So this volume addresses an important subject at what increasingly feels like something of a turning point in western societies. Since the mid-20th century, the ultimate aim of government policy in the economic sphere has been sustained growth in GDP and productivity. Keynes decisively linked a high and stable level of employment, his ultimate policy aim, to management of GDP through fiscal and monetary policies. The Cold War established economic output growth as correlate of the arms race. Yet almost since the moment a target for GDP growth was inscribed in western economic policy, it has had vocal critics. Feminists and environmentalists stand out among them, for making the undeniable point that GDP had serious omissions. It did not include unpaid work in the home, mainly done by women, of significant economic as well as social value. Nor did it account for externalities such as pollution or the depletion of natural assets.

Economists have long had a stock response to these criticisms, which is that it has always been known that GDP was an imperfect measure of economic welfare. It measures marketed economic activities at their exchange values, and as long as everyone keeps its limitations in mind it is a useful measure of economic progress. Of course, nuance never makes it to the headlines, and it is the simple headline growth rate in GDP that became the measure of policy success. It is not surprising that many people have become frustrated and that interest in alternative measures of progress has been growing.

One of these is subjective well-being or – to use the common shorthand – 'happiness'. Why not cut to the chase and set the ultimate aim of human lives as the objective for policymakers? The influence of Richard Easterlin's original paper on the paradox of happiness has increased steadily over the years. His observation that reported happiness is correlated with the level of GDP per capita in cross-section, but after a certain income level stops being correlated with it over time, is robust. The interpretation that there is no well-being benefit in further increases in income after that point has been strongly contested, however. Several economists have pointed out in subsequent studies that happiness scores are strongly correlated with GDP growth over time. What's more, one of the psychological heuristics noted by behavioural economists is that people evaluate decisions in terms of losses and gains from a reference point, in terms of changes, not levels.

Another is that people adapt relatively quickly to changes in their circumstances, and have a strong inbuilt happiness set point. This can help resolve the paradox, for it suggests that a long-term correlation between GDP per capita and happiness is indeed unlikely. But then how useful then can measures of well-being be to guide and evaluate policy? So it is not constructive to see happiness data as a simple substitute for GDP as an economic policy aim, to replace a 2% GDP growth target with a target 0.2 point aggregate happiness increase. One of the lessons of recent debate about economic measurement is that a simple measure does not do justice to a complex reality with trade-offs between groups or between present and future.

However, as these essays demonstrate, the research since the original Easterlin paper has pursued avenues that have generated important policy insights. Prominent among these are the importance of mental and public health; the relevance of the social as well as the private to economic well-being; the importance of employment for social esteem and a sense of agency as well as a source of income. Yet these insights are scarcely reflected at all in public policies. And as the introductory chapter points out, there are still many unanswered questions, including how people interpret the questions in happiness surveys and evaluate their own happiness. There is surely much more to understand about the interactions between genes and reported well-being; this is territory where much is unknown, and researchers must tread carefully.

There are some straightforward economic questions. Does being happy make people more productive? Does it affect voting, in fact? How are well-being measures related to economic variables, not just GDP but also those flagged as crucial by the critics of GDP such as quality of the environment, unpaid but valuable activities, and the distribution of income? There need not be a good match between self-reported happiness measures and the inter-temporal trade-offs involved in thinking about the sustainability of economic activity, or about distributional conflicts for that matter. What are the trade-offs between the happiness of different individuals or groups, how do their individual scores aggregate, and what policy implications are there?

There are some uncomfortable questions we might ask as well, in case it seems the happiness agenda is all feel-good. It is easy enough to agree that the agenda makes high and stable employment a priority, and supports increased spending on health care. But does cultural diversity or the presence of immigrants really make some people as unhappy as their votes would seem to suggest? Does the relationship between happiness and some social characteristics (such as being married or holding religious beliefs) involve a presumption of government action? If not, why not, especially if happiness is 'contagious' as strongly argued here? And how is individual happiness mediated – if it is – through public debate; how will people hold their elected politicians to account for how much well-being they feel?

So this is an incredibly rich agenda for research and policy debate, and this publication is to be welcomed for highlighting the issues. Alongside the recent political upsets, there is also sluggish economic performance in many OECD countries, with high unemployment in some, low productivity growth and an absence of real wage gains in others. Putting the spotlight on happiness could hardly be more timely.

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EXECUTIVE SUMMARY

'The care of human life and happiness, and not their destruction, is the first and only object of good government' (Thomas Jefferson, a founding father of the United States of America, in 1809).[1]

'The welfare of a nation can…scarcely be inferred from a measure of national income' (Simon Kuznets, Nobel Laureate, a founding father of Gross Domestic Product, or GDP, in 1934).[2]

Everyone wants to be happy. Over the ages, tracts of the ancient moral philosophers – Plato, Aristotle, Confucius – have probed the question of happiness. The stirring words in the preamble to the Declaration of Independence that established 'Life, Liberty and the pursuit of Happiness' as 'unalienable Rights' served as the inspiration that launched a nation, the United States of America. Yet, more than 240 years later, the relationship between government's objectives and human happiness is not straightforward, even over the matters of whether it can and should be a government aim.

We approach this question not as philosophers, but as social scientists seeking to understand happiness through data. Our work in these pages is intended to enhance understanding of how the well-being of individuals and societies is affected by myriad forces, among them: income, inflation, governance, genes, inflation, inequality, bereavement, biology, aspirations, unemployment, recession, economic growth, life expectancies, infant mortality, war and conflict, family and social networks, and mental and physical health and health care. Our report suggests the ways in which this information might be brought to bear to rethink traditional aims and definitions of socioeconomic progress, and to create a better – and, yes, happier – world. We explain what the data say to us: our times demand new approaches.

The definition of national success has for a long time been largely defined by three letters: GDP. Gross Domestic Product has been treated as the gauge of a nation's prosperity and progress, health and achievements, and power and prestige; it has been called 'the ultimate measure of a country's overall welfare, a window into an economy's soul, the statistic to end all statistics'.[3] Yet even from the time of its origins after the upheaval wrought by the Great Depression and World War II, the creators themselves were well aware of its limitations. The passage of time has only underscored its shortcomings, and led to growing questions about how to find a measure that can incorporate more than the value of a nation's goods and services. The search is on to create and use a new sort of calculus, some metric capable of capturing more of the complexity of the modern human condition - in short, a bottom line for the state of a society's well-being.

Happiness, a fuzzy concept that not so long ago provoked bemusement in certain policy circles, is now something of a cri de coeur for a growing international movement,[4] and the subject of one of the fastest-growing lines of academic research.[5] To wit: In 2009, French President Nicolas Sarkozy, calling for a revolution in the way national wealth is measured and an end to 'GDP fetishism', urged countries to adopt new measures of economic output as suggested by a panel of international economists led by Nobel Laureates Joseph Stiglitz and Amartya Sen;[6] In 2010, UK Prime Minister David Cameron asked the Office of National Statistics to 'start measuring our progress as a country, not just by how our economy is growing, but by how our lives are improving'.[7] In 2011, the Organisation for Economic Co-operation and Development created a Better Life Index to bring together internationally comparable measures of well-being.[8] The same year, the United Nations General Assembly adopted Resolution 65/309, 'Happiness: towards a holistic approach to development', which urged member states to develop and pursue well-being measures to guide public policy.[9] In 2012, the United Nations Sustainable Development Solutions Network published its first World Happiness Report, the first global survey of well-being. 'We live in an age of stark contradictions', economists John Helliwell, Richard Layard and Jeffrey Sachs, observed in the report. 'Countries achieve great progress in economic development as conventionally measured; yet along the way succumb to new crises of obesity, smoking, diabetes, depression, and other ills of modern life'.[10]

Modern economic ills - the Financial Crisis of 2007-2008 and the Great Recession that followed – have also spurred thinking on the need to find

more relevant measures that can take into account these contemporary contradictions and important issues such as mental and physical health outcomes, social and environmental degradation and sustainability. As the Commission on the Measurement of Economic Performance and Social Progress, concluded, '…the whole commission is convinced that the crisis is teaching us a very important lesson: those attempting to guide the economy and our societies are like pilots…steering a course without a reliable compass. The decisions they (and we as individual citizens) make depend on what we measure, how good our measurements are and how well our measures are understood'.[11]

All this signals new ways of thinking about socioeconomic progress and a willingness, as the Commission's report put it, 'to shift emphasis from measuring economic production to measure people's well-being'.[12]

Underpinning this new way of thinking is a relatively new science – or, more accurately, a mix of sciences. The subject is now a pursuit of academic social sciences and the sciences including economics, political science, psychology, geography, sociology, and medical, epidemiological and biological sciences.

The catalyst for this genre of research and the policy interest occurred more than 40 years ago when Richard Easterlin reached the controversial conclusion that economic growth and happiness are not linked.[13] The Easterlin Paradox or Happiness Paradox, which has been documented in nations around the world, found that economic growth bought little in the way of happiness.[14] Though we do not fully understand why this may be, one likely reason is that we humans are creatures of comparison. Research shows that we tend to be happier when our income or status relative to others is higher; yet, when everyone's income rises, status does not - an insight that has enormous policy implications,[15] and one that manages to explain why 'we go from having one Ford to having three Lexuses, and nobody is happier'.[16] For, if, in fact, economic growth does little to improve social welfare, should economic growth be the goal? As Easterlin himself observes, 'Through public policies, we could improve people's well-being… independently of economic growth, but of course to the extent we have

economic growth that makes it easier to conduct these policies. So, this is not an anti-growth view. It's that what we do with the fruits of economic growth…to improve people's happiness'.[17]

Against this backdrop, our policy report, 'Understanding Happiness', presents the findings of three new and varied research approaches that explore the subject of well-being. In these pages we analyse how subjective feelings may prove to be a measure that can advance human happiness in a way that has proved elusive via the GDP yardstick; we examine how much of our happiness is the result of our biological makeup; and we look at how human happiness has been affected by major events over two centuries of history. We then present the policy implications of these avenues of research.

Key findings of the research include:

- **Happiness as an aim of public policy:** Many countries, including the UK, now gather data that can complement economic data, and can provide a source for tracking the progress of well-being in society. New thinking is shifting away from ways that solely add up net income, and toward ways to add up net well-being. A key policy issue for the future of Western societies is likely to be, not whether to use data on feelings, but which feelings will be given most importance. The relative weight given to feelings (such as increasing happiness or reducing anxiety) is important because different policy priorities may follow. We believe that policymakers make a mistake by eschewing the use of data on self-reported feelings, or regarding these data as somehow inferior to other statistics. When it comes to government policy, the goal is generally what can achieve the greatest national good. In the pursuit of this goal, governments always face budget limits, public pressure to spend wisely and for the greatest benefit, and sharp political debate over how, and how much, to spend (and tax). The full policy picture ought to incorporate measures of how people feel, and whether these feelings are moving in a positive or negative direction. If governments want to aim to increase human well-being, rather than simply to increase GDP per capita, then

somehow or other, a mixture of human feelings must be given weight in government policy-making.

- **The happiness gene:** Certain nations consistently rank among the world's happiest nations, with Denmark frequently topping the list. Taking advantage of new technologies, and research on the brain and our DNA, we examine whether genetic components play a role in this by using three tests: genetic distance (comparing the closeness of genetic stocks among nations), genetic variation (looking for the prevalence of mutations of genes that may lead people to be less resilient in the face of life's stresses), and genetic inheritance (whether variation in happiness levels among certain nations survives through the happiness levels of descendants who have emigrated). Though we underscore that our findings should be taken with a note of caution, we do find that genes play a role in happiness that is statistically significant and practically significant. That is, genes matter, and genes matter enough for us to care. The findings represent an upper limit, or maximum value, on the role played by genetic variation. The maximum value is around one third, and the true value may well be less. All the rest of the variation in happiness – at least two thirds of the variation - must be explained by circumstances that are not inherited, and are therefore to some degree under the influence of society and policy.

- **Happiness through history:** We create a happiness index by examining the emotions conveyed by words from some 8 million digitised books published in six countries over more than two centuries. Looking at changes over time offers us a way to gain insights about what made – or failed to make - earlier societies happier. It also informs 'emotional accounting' for governments and agencies. The research confirms that economic growth does not necessarily lead to improved happiness of societies. Wars, civil conflict, and the economic collapse of the Great Depression led to plummeting levels in well-being. Increases in life expectancy and decreases in rates of child mortality coincided with increased levels of happiness.

Key policy implications include:

- Government measures of socioeconomic progress should evolve to reflect the complexity of modern life. While our report should not be interpreted to mean that the condition of a national economy is unimportant or irrelevant, we underscore that the pursuit of economic growth should not come at the expense of other important aims that can enhance well-being. The fruits of economic growth ought to be directed in ways that are targeted toward improving the life satisfaction of people, rather than toward the sole aim of income growth.

- Happiness measures have the potential to help direct limited government resources toward the most effective public policy interventions. This is particularly important as governments seek to keep up or improve satisfaction with public services and perhaps to reduce the money spent on them.

- Mental health services that help people to cope with the vicissitudes of life are likely to improve well-being. Despite the profound limits in understanding of how and the degree to which genes influence happiness, policies that make mental health services affordable, widely available, easily accessible, and less stigmatised would help people to cope, and would be of particular benefit to those who are likely to be most vulnerable to the stresses of life.

- Policies that target greater happiness among some individuals or groups have the potential to circulate more widely in society through friendship and family networks. Genetic similarities among certain populations explain some of the differences among the happiness levels of citizens of different nations, but multiplier effects of social networks likely play a role as well. In other words, happiness circulates. As a result, measures that foster and cultivate strong, positive social networks provide channels that spread well-being. The implication of this for the design of policy initiatives – focusing on the social dimension by which gains in happiness might be expected to circulate as well as basic increases in individual happiness – feels particularly relevant when social isolation has become a growing mental and

physical health concern,[18] with risks comparable to those associated with smoking and exceeding those from inactivity.[19]

- Policies that seek to boost life satisfaction should funnel resources into activities that foster better health. Health care that improves the likelihood that we and our children will live long and healthful lives is very important to human happiness. The importance of increased longevity and reduced child mortality in the happiness of societies over the past 200 years underscores that looking forward to a long, healthy life for ourselves and for our offspring figures more prominently in the well-being picture than economic growth.

- Monetary and fiscal policies that foster economic stability are a source of well-being. Policies that help to secure stable employment levels and avoid runaway inflation are important – not just for technical economic reasons but also for happiness.

A greater focus on happiness in policy-making could shape priorities right from their conception. In the same way that economic cost-benefit analysis can be used to prioritise policy intervention, it is possible to imagine the targeting of happiness gains when policy choices between competing priorities are being made.

If this approach were taken to its logical conclusion, the next public spending round in a nation like the UK would consist of the different government departments presenting their sets of policies with estimated costs and happiness benefits, and then choices being made with the aim of maximising happiness. This would be a major change in the design, or technology, of how policy is designed and made, one that we believe flows from the greater focus on happiness that our research suggests is now not only possible but increasingly robust and better understood.

Conventional economics and the economics of happiness do not always lead to the same policy conclusions. Conventional economics argues that greater GDP will make society happier. But if the criteria are human feelings and genuinely greater well-being, the evidence is mixed. What many economists who work on the subject of happiness believe we would actually need to boost well-being, for example, would be lower unemployment rates

and better health. When thought through, these are neither the same as nor guaranteed by higher national income. To improve well-being, we also need to pursue other things such as cleaner air and shorter commutes and other matters that conventional economics finds hard to value - in both senses of the term.

For example, what happens when Person A grows richer? If everyone else's income stays fixed, Person A may become happier. But what if Person A grows richer, and so does everyone else? Happiness research has demonstrated that, in this case, Person A is unlikely to feel any happier. We believe this is because people care predominantly about their relative standing. Thus, when all citizens get richer, it is possible - despite conventional economic wisdom suggesting otherwise - for people to feel no better about their lives. The data support this disruptive idea.

CHAPTER 1. HAPPINESS AS A POLICY AIM*

'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness'. – The Preamble of the Declaration of Independence, the United States of America, 1776.

'A unifying theme … is that the time is ripe…to shift emphasis from measuring economic production to measuring people's well-being'. – Report by the Commission on the Measurement of Economic Performance and Social Progress, 2009.[1]

'Cognizant that happiness as a universal goal and aspiration embodies the spirit of the Millennium Development Goals … (We invite) Member States to pursue the elaboration of additional measures that better capture the importance of the pursuit of happiness and well-being in development with a view to guiding their public policies'. – General Assembly of the United Nations, Resolution 65/309, July 2011.[2]

SETTING THE SCENE

Everyone wants to be happy. Over the ages, tracts of the ancient moral philosophers – Plato, Aristotle, Confucius – have probed the question of happiness. The stirring words in the preamble to the Declaration of Independence established 'Life, Liberty and the pursuit of Happiness' as 'unalienable Rights', and served as the inspiration that launched a nation, the United States of America. Yet, more than 240 years later, the relationship between government objectives and human happiness is not straightforward, even over the matters of whether happiness can and should be a government aim.

We approach this question not as philosophers, but as social scientists seeking to understand happiness through data. Our work in these pages is intended to enhance understanding of how the well-being of individuals

and societies is affected by myriad forces, among them: income, inflation, governance, genes, inflation, inequality, bereavement, biology, aspirations, unemployment, recession, economic growth, life expectancies, infant mortality, war and conflict, family and social networks, and mental and physical health and health care. Our report suggests the ways in which this information might be brought to bear to rethink the traditional aims and definitions of socioeconomic progress, and to create a better – and, yes, happier – world. In this policy report, we say what the data say to us: our times demand new approaches.

> **SIDEBAR 1: What is GDP?**
>
> A country's Gross Domestic Product (GDP) measures everything that is produced within the country. It is the most widely used measure of economic activity, and it represents the total value added of all goods and services produced in a given period of time.
>
> But what it measures, and what it represents are two different things. Symbolically, GDP serves as much more, and its primacy in politics and finance is difficult to overstate. The size of a nation's GDP can be taken as a measure of its importance in the world economy, and as a proxy for its global power.
>
> As Diane Coyle writes, in 'GDP: A Brief but Affectionate History', '…this single measure of "the economy" tends to dominate political contests, and governments' fortunes seem to rise and fall with the difference between plus 0.2 percent and minus 0.1 percent in one quarter's GDP numbers'.[3]
>
> Does GDP measure social welfare? To have a large GDP relative to the population may make a high level of social welfare possible, but there is no guarantee of it. The links from production and consumption to well-being are too many, too complex, and too varied for any simple relationship.

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* This chapter is based on research listed in the references under O'Donnell and Oswald (2015). The authors are also authors of this policy report.

From the time that the GDP measure was created in the wake of the Great Depression and World War II, the creators themselves were well aware of its limitations. With the passage of time, more people have called for more robust measures to incorporate more of the complexity of contemporary life, provide a more meaningful barometer of the human condition, and account for factors that GDP does not address, including, for instance, environmental costs, such as pollution. As but one example, GDP includes the additional gasoline sold as the result of traffic jams, but not the costs in terms of air pollution, or the loss of productive time for people stuck in traffic.

At best, GDP is a crude and indirect measure of well-being in society. At worst, well-being and GDP turn out to be unrelated. This is the most important reason for trying to measure well-being directly, and for trying to understand the factors that directly affect it.

In our times, the definition of national success has been largely defined by three letters: GDP. Gross Domestic Product has been treated as the gauge of a nation's prosperity and progress, health and achievements, and power and prestige; it has been called 'the ultimate measure of a country's overall welfare, a window into an economy's soul, the statistic to end all statistics'.[4] Yet even from the time of its origins after the upheaval wrought by the Great Depression and World War II, the creators themselves were well aware of its limitations. The passage of time has only underscored its shortcomings, and led to growing questions about how to find a measure that can incorporate more than the value of a nation's goods and services. The search is on to create and use a new sort of calculus, some metric capable of capturing more of the complexity of the modern human condition - in short, a bottom line for the state of a society's well-being.

A NEW DEFINITION OF DEVELOPMENT AND PROGRESS

At present, many national governments and international organisations are beginning to attempt to measure human happiness or well-being as part of an effort to create a broader assessment of socioeconomic progress. This pivot – from thinking largely about spurring economic growth and

toward thinking about how to galvanise societal happiness – represents a fundamental change. 'Well-being policy' itself is unconventional terminology, and a relatively new and unorthodox concept that raises basic questions:

SIDEBAR 2: Happiness Defined

'What we call happiness, in the strictest sense of the word, arises from the fairly sudden satisfaction of pent-up needs. By its very nature it can be no more than an episodic phenomenon'. - Sigmund Freud, psychologist[5]

'Happiness is the sublime moment when you get out of your corsets at night'. – Joyce Grenfell, British actress, singer and comedienne

Happiness means, well, whatever it means to you. Happiness is defined in different ways by different people. A logical question for a report such as this, then, is how can the happiness of people – and, indeed, of entire nations – be compared?

Throughout this policy report, we use the terms happiness, well-being, subjective well-being, and life satisfaction interchangeably. When we use these terms, we are referring to self-reported feelings that have been measured through surveys of one kind or another. For example, the U.S. General Social Survey, says, 'Taken all together, how would you say things are these days – would you say that you are very happy, pretty happy or not too happy'? The Eurobarometer asks, 'On the whole, how satisfied are you with the life you lead'?[6] And the Gallup World Poll uses an analogy, asking respondents to rate their lives along a scale represented by a ladder, with the best possible life at a level of 10 and the worst possible life at a level of zero.[7]

In research and policy pursuits, different definitions have been suggested over the years. In general, subjective well-being is regarded as 'the scientific name for the way people evaluate their lives', as psychologist Edward Diener succinctly puts it.[8] Surveys give people a way to evaluate the level of their life satisfaction and to suggest how fulfilled their lives are.

> Though we each are free to define happiness or well-being on our own terms, in general, throughout the world, common themes underlie the happiness of most people. As Richard Easterlin has observed, 'In most people's lives everywhere the dominant concerns are making a living, family life, and health, and it is these concerns that ordinarily determine how happy people feel'.[9]

- How can a government put a measure on something as amorphous as happiness?
- Can any happiness measure constitute a legitimate and practical guide for policy?
- How might the use of happiness as a goal affect the policies governments implement?

We think of a 'well-being policy' as any form of economic and social policy-making that uses people's feelings of psychological well-being. More broadly, it represents **national decision making that draws upon data on citizens' reported emotions.**

At first glance, this can sound like a strange and radical idea - far removed from business as usual. Governments aspire to base policies on incontrovertible facts, the data that provide the evidence in the 'evidence-based' policies (though, it must be admitted, the evidence is often viewed through a prism of political ideology).

The notion of using feelings might seem at odds with evidence grounded in fact. Yet, when we reflect upon the state of the world, and the evolution of society and modern life, the concept of using feelings in the pursuit of good policy-making strikes us as sensible, logical, and, perhaps even overdue. As a society evolves, allowing the concept of success to evolve as well seems natural. Our report builds on this simple idea.

WHAT EXPLAINS THE GROWING INTEREST IN HAPPINESS POLICY?

Though basic human needs remain unmet in too many parts of the world, many nations have experienced striking, and unprecedented levels of growth, and most (though not all) people in industrialised nations live lives that are filled with much more in the way of material goods and conveniences.

Yet, human beings are fundamentally creatures of emotion and feeling. To understand the quality of their lives, therefore, it seems logical to measure not only actions, as economists traditionally have done, but also feelings, as we propose here. The intuitive nature of this may underlie the explosion that has taken place over recent decades in academic and policy interest in the economics of well-being and happiness.

Another potential explanation for the growing interest in the subject is the growing belief in, evidence for, and controversy over the ideas first espoused by Richard Easterlin, who, as early as 1974, questioned the value of measuring human progress by using data solely on economic growth.[10] As he and other researchers have since documented, decades of remarkable economic growth, bought little in the way of happiness.[11] Though wealthier individuals within a society are generally happier than those with less, after a point, more money does not buy commensurately more happiness for societies. Though we do not fully understand why this may be, one likely reason is that we humans are creatures of comparison. Research shows that we tend to be happier when our income or status relative to others is higher; yet, when everyone's income rises, status does not - an insight that has enormous policy implications,[12] and one that manages to explain why 'we go from having one Ford to having three Lexuses, and nobody is happier'.[13] For, if, in fact, economic growth does little to improve social welfare, should economic growth be the goal? As Easterlin himself observes, 'Through public policies, we could improve people's well-being… independently of economic growth, but of course to the extent we have economic growth that makes it easier to conduct these policies. So, this is not an anti-growth view. It's that what we do with the fruits of economic growth…to improve people's happiness'.[14]

SIDEBAR 3: The Happiness Paradox

In 1974, Richard Easterlin observed that decades of substantial, real income growth in the United States had not led to corresponding growth in happiness levels. The Easterlin Paradox, or Happiness Paradox, has been documented in the UK and more than three dozen countries throughout the globe, including developed and developing nations, those in transition to market economies.

The paradox has led to decades of research exploring why – and whether – it exists. It also has had far-reaching policy implications. If economic growth does little or nothing to improve the well-being of citizens, then should economic growth be a primary goal of government policy?

Studies within countries find that wealthier people tend to be happier than poor people. Yet studies that compare countries, or look at a single country over a period of time find very little, if any, relationship between increases in per capita income and average happiness levels.[15] On average, wealthier countries are happier than poor ones; happiness seems to rise with income up to a point, but not beyond it.[16]

One common interpretation of the Easterlin paradox is that humans are on what is referred to as a 'hedonic treadmill': aspirations increase along with income, and after basic needs are met, relative, rather than absolute, levels of income matter for well-being.[17] Another interpretation of the paradox is the psychologists' 'set point' theory of happiness, in which every individual is presumed to have a happiness level that he or she goes back to over time; however, some research has shown that certain devastating life events – unemployment among them – appear to lower the 'set point' permanently.[18]

Easterlin argues that, after a person has earned enough to address basic needs, well-being stems from factors other than income: matters such as family, friends, good health, and altruistic pursuits.

He also believes that changes in material aspirations over time explain some of the paradox. Over one's life cycle, aspirations increase in proportion to income. 'Even though rising income means that people can have more goods', he writes, 'the favorable effect of this is erased by the fact that people want more as they progress through the life cycle'.[19]

The Easterlin Paradox or the Happiness Paradox, launched an entire genre of research exploring the relationship between happiness, income and the other forces that play a part in the well-being of individuals and societies. After decades of research, it is clear that these relationships are complex.

One does not have to be a fervent believer in or a fervent denier of the Happiness Paradox to consider taking well-being into account in the formulation of modern public policies. Even amid the vigorous debate over whether and the degree to which income buys happiness for individuals and for societies – the merits of which we discuss in separate items within this chapter - virtually all research and common sense reach agreement on a basic point: money matters, but it is not everything.

SIDEBAR 4: The Easterlin Paradox Refuted?

Not everyone believes that the Happiness Paradox exists. The finding that the economic development and happiness of a society are not linked is being challenged by work that has reached the opposite conclusion.

In 2008, research by Betsey Stevenson and Justin Wolfers, concluded:[20]

1. Rich people are happier than poor people.
2. Richer countries are happier than poorer countries.
3. As countries get richer, they tend to get happier.[21]

'There's no longer any doubt that people in richer countries report being more satisfied with their lives', Wolfers writes.[22]

The researchers systematically examined the accumulation of data over recent decades, re-examined older data, and concluded that 'the relationship was there all along: rising GDP yields rising life satisfaction'.[23]

'Easterlin's Paradox is a non-finding. His paradox simply describes the failure of some researchers (not us!) to isolate a clear relationship between GDP and life satisfaction', Stevenson and Wolfers write.[24]

Easterlin, who agrees that people in richer countries are more satisfied with life remains sceptical that wealth is the source of their satisfaction because satisfaction has not necessarily risen in individual countries (such as the United States and China) as they have grown richer.[25] He contends that the dissenting view is the result of failing to distinguish between short- and long-term relationships between happiness and income. 'Over the long term', he insists, 'happiness and income are unrelated'.[26]

Our intention is not to argue that nations should go over to an exclusive use of 'happiness' and subjective well-being data to the exclusion of all else. Nor is our purpose to denigrate the traditionally collected kinds of information that inform us about the economic condition. We do not argue for an extreme, anti-growth position – even though such arguments should, we believe, be taken seriously by economists. Our work is intended to be constructive and exploratory. We take what is essentially a utilitarian, philosophical approach. At the same time, we emphasise that key distinctions between conventional economics and the economics of happiness mean that they will not always reach the same policy conclusions.

Nevertheless, at some level the basic concepts we present here ought to sound familiar to those who grapple with policy-making by using tools that rely on data, the accounting and statistics that generate GDP, and unemployment rates, and other economics measurements. The new style of policy-making we explore here also intends to leverage data - but these data will come in the form of average well-being 'scores'. One challenge is to find satisfactory ways to weigh, score and use different kinds of human feelings.

CHANGING GOALS

The Happiness Paradox might not have struck famed American psychologist Abraham Maslow as at all paradoxical. In Maslow's well-known 'hierarchy of needs', we satisfy our needs in order of precedence. First we fulfil basic needs for nutrition and shelter, and then (in order) for safety, for solidarity, for prestige, and finally for personal fulfilment and creativity.[27] Were he alive today, Maslow might have predicted that human beings in advanced, industrialised societies would care more, at the margin, about non-pecuniary issues, such as cultivating close family ties and friendships, reducing stress that stems from long commutes and pressure at the workplace, having access to clean environments, having time and resources to take and enjoy holidays. On the same logic, our society, having achieved most basic needs, can now reassess the essence of what it means to achieve progress.

Another force driving interest in societal well-being and broader benchmarks of socioeconomic progress might be the inability of current measures to incorporate issues related to the growing concerns about sustainability in many forms. Traditionally, economists have worried about whether economies can sustain the growing burden of national debt. Increasingly, questions concern environmental matters and climate change, and whether the environment can sustain the rising burden of carbon emissions, and the rising consumption from a growing global population. At a time in which epidemic growth in depression has been called an 'ill of modernity', people should also worry about the sustainability of the burdens of depression, other mental health concerns, and anger in society.[28]

FINDING MEASURES IN SYNC WITH CONTEMPORARY SOCIETY

We undertake this work from the perspective of economists – one having worked in academia for 40 years and the other having worked in UK public policy-making for 40 years. However, our exploration draws heavily on ideas advanced by researchers and opinion leaders in a wide variety of areas – particularly in public health, and political science, along with thousands of writings by psychologists, epidemiologists, sociologists, psychiatrists, neuroscientists and others.

For example, our approach is similar in spirit to contemporary thinking on the evolution of public health. This course was articulated by public health visionary Lester Breslow, who conceived of a 'third revolution' for public health following a first revolution that largely conquered infectious disease,

and a second that advanced life expectancies by addressing chronic disease.[29] His third wave proposed focusing on healthy living for all.

Our approach also builds on extensive research (by Patrick Flavin,[30] Benjamin Radcliff,[31] Bruno Rey and Alois Stutzer,[32] and our own work with Di Tella and others[33]) showing that government intervention can be a source of improved well-being in society, and concluding that public polices 'that attempt to insulate citizens from the ups and downs of the market economy appear to promote greater human happiness for all citizens in society'.[34]

SIDEBAR 5: Government Interventions and Happiness

Research shows that government interventions are linked with happiness. People who live in countries with more expansive welfare programs are more satisfied with their lives than those who do not, research by Benjamin Radcliff shows.[35] The same pattern is found within the United States; Americans who live in states with higher welfare spending, more liberal state governments, more regulation of business, and a greater recent history of control by the Democratic Party are more satisfied with their lives, regardless of income, age or marital status, the research shows.[36]

Research by Rafael di Tella, Robert MacCulloch, and Andrew Oswald examines the psychological well-being levels of a quarter of a million randomly sampled Europeans and Americans from the 1970s to the 1990s. The analysis finds that well-being does correlate with GDP, but well-being gains during good periods wear off over time. The psychic losses that emerge in recessions are so large that they extend beyond the fall in GDP, and beyond the rise in the number of people unemployed. They find that the welfare state is a compensating force, with higher unemployment benefits associated with higher national well-being.[37]

Still other research by Bruno Frey and Alois Stutzer finds that governance institutions influence well-being. Direct democracy (via initiatives and referenda) and local autonomy systematically and sizeably raise self-reported individual well-being, they find. Their work shows a higher income level raises happiness only to a small extent, but unemployment has a strongly depressing effect on happiness.[38]

Moreover, we follow in the same intellectual tradition as the Commission on the Measurement of Economic Performance and Social Progress, led by Nobel Laureates Joseph Stiglitz and Amartya Sen, and Jean-Paul Fitoussi.[39] Among the conclusions of the commission, which inform our outlook, and which merit consideration by policy-makers, are:

- **Life is now more complex.** 'The time has come to adapt our system of measurement…to better reflect the structural changes which have characterized the evolution of modern economies'.

- **Services, rather than manufacturing, now dominate the world of work.** In effect the growing share of services and the production of increasingly complex products make the measurement of output and economic performance more difficult than in the past.

- **We, as a society, need to measure well-being per se.** 'A…unifying theme of the report, is that the time is ripe for our measurement system to shift emphasis from measuring economic production to measuring people's well-being'.

- **Inequality itself matters.** 'Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way'.

- **Official government statistics should blend objective and subjective well-being data.** 'Statistical offices should incorporate questions to capture people's life evaluations …experiences and priorities'.

- **Sustainability must be a criterion.** 'Sustainability assessment requires a well-identified dashboard of indicators…the components of this dashboard should be…interpretable as variations of some underlying "stocks". A monetary index of sustainability has its place in such a dashboard'.[40]

TRANSLATING FEELINGS INTO DATA

At the same time, however, this work is decidedly new; work at the border between happiness research and policy-making is still relatively scarce – and the relationship between research and policy is undergoing change. While the well-being of people might be believed to matter strongly in itself, growing evidence suggests that 'happier' workers are more productive[41] –

adding incentive for governments, businesses and societies to pursue the subject. If this were not enough of an incentive, elected politicians seeking to stay in power might wish to consider the recent finding of research showing that when citizens are more satisfied with their lives, they are more likely to cast ballots in support of the incumbent party.[42]

SIDEBAR 6: Happier Workers are More Productive

'At Google, we know that health, family and wellbeing are an important aspect of Googlers' lives. We have also noticed that employees who are happy ... demonstrate increased motivation ... [We] ... work to ensure that Google is... an emotionally healthy place to work'. - Lara Harding, People Programs Manager, Google.[43]

'Supporting our people must begin at the most fundamental level – their physical and mental health and wellbeing. It is only from strong foundations that they can handle ... complex issues'. - Matthew Thomas, Manager – Employee Relations, Ernst and Young.[44]

Does happiness make people more productive workers? Some firms say they care about their employees' well-being and 'happiness' - with the expectation that happier people are more productive. But the question remains about whether such claims are largely hype, or whether they make good sense.

CAGE research by Andrew Oswald, Eugenio Proto and Daniel Sgroi provides what is believed to be the first clear evidence of a causal link from well-being to productivity.[45] [46] They conducted a series of experiments to evaluate whether happiness levels affect productivity. In the experiments, university students were paid to add five-digit numbers under time pressure. The students were paid for each correct answer.

In the first experiments, some students watched a comedy movie clip before undertaking the work. In a third experiment, some students received chocolate, fruit and drinks before undertaking the work. Productivity was substantially higher among those who watched the comedy clip, and among those who were offered food and drinks. Those who reported the largest happiness boost from the movie or food and drinks were the most productive. Students in the 'happier' groups were approximately 12 percent more productive.

In another experiment, Oswald, Proto and Sgroi compared the productivity of students who had indicated that they had recently experienced a traumatic life event – the death or serious illness of a close family member. Self-reported levels of happiness for this group were lower than those who had not experienced a recent trauma, and the students who had experienced trauma were also less productive.

The findings provide evidence of a link between happiness and productivity – raising the possibility of creating self-sustaining spirals between the two.

SIDEBAR 7: Happiness at the Ballot Box

Recent research shows that measures of subjective well-being can explain voting behaviour – and in ways that may be more powerful than traditional monetary and financial indicators. Citizens who are more satisfied with their lives are more likely to cast votes in favour of the incumbent party, research by Federica Liberini, Michela Redoano, and Eugenio Proto finds.

The findings show that a decrease in life satisfaction of one point on a seven-point scale corresponds with a 12 percent decline in support of an incumbent party. Citizens who are satisfied with their lives are 1.6 percent more likely to support an incumbent; by contrast, a 10 percent increase in family income leads to a 0.18 percent increase in an individual's support of the incumbent.

The research shows that citizens blame or reward officeholders even when the event that leads to lower life satisfaction is beyond a government's control.

To examine the issue, the researchers analyse the voting behaviour of individuals who experienced the death of a spouse, an event that leads life satisfaction to fall. These bereaved voters are roughly 10 percent less likely to support an incumbent, even when policies (such as health care or social welfare policies) cannot reasonably be blamed for the death. The effect is most pronounced among swing voters rather than partisans.

The results underscore the growing awareness of the importance of taking well-being into account in policy formation. The research shows that citizens fail to distinguish whether elected officials are truly responsible for the declines in well-being they experience. Thus, a fall in life satisfaction - regardless of the cause – leads voters to hold the politicians in office responsible.[47]

For a long time, economists have thought about and empirically measured the concept of GDP. All industrialised nations now calculate estimates of their real GDP, and these are regularly published, and serve as an implied national level of income. The question is whether something similar might be devised for well-being.

At the conceptual core of our proposal lies a key notion: ***If governments want to aim to increase human well-being, rather than simply to increase GDP per capita, then somehow or other, a mixture of human feelings must be given weight in government policy-making.***

RE-THINKING THE IMPORTANCE OF FEELINGS

We think researchers and economic policy-makers make a mistake by eschewing the use of data on self-reported feelings, or regarding these data as somehow inferior to other statistics. When it comes to government policy, the goal is generally what can achieve the greatest national good. In the pursuit of this goal, governments always face budget limits, public

pressure to spend wisely and for the greatest benefit, and sharp political debate over how, and how much, to spend (and tax). The policy picture ought to incorporate measures of how people feel, and whether these feelings are moving in a positive or negative direction.

The details of how to best combine objective and subjective data remain unknown. But to begin to learn the answers, we must begin. We do that here by exploring potentially viable empirical approaches to the measurement of well-being improvements in a society, and thinking about the underlying issues that merit consideration as governments wrestle with new ways of measuring progress.

In the research avenue that has come to be known as the economics of happiness (or of well-being), random samples of individuals are asked in surveys how they rate the quality of their lives. Researchers take the answers and correlate those with the observable features of those people's lives – their income, their marital status, their age, their gender, and so on.

Whatever its limitations, this research has a strength. People are not asked how much one thing makes them happy compared to another. So, for example, studies of the economics of well-being do not ask, 'How much unhappiness did you suffer from being made unemployed'? (In fact, some research suggests that we are very poor predictors of what will make us happy or unhappy.[48]) In this respect, this work bears some similar to the work of epidemiologists. Rather than asking people whether they believe that smoking makes them less healthy, or whether fruit and vegetables make them healthier, epidemiologists find links by studying patterns that emerge down the line for smokers and non-smokers, and for those who have eaten certain diets. We hope to accomplish the same in analysing patterns of well-being that emerge over years.

WELL-BEING SURVEYS

A good place to start already exists. Since 2011, the UK Office of National Statistics has been collecting information via a survey that asks people about four emotions: happiness, life satisfaction, anxiety and worthwhileness of life. These four feelings happen to be those of choice for UK statisticians,

but many industrialized nations – at least 21 at the last count - collect similar data that could be used for the purposes. This isn't a fixed formula; more or fewer emotions or data could be employed by governments to provide a sense of citizens' feelings.

In the Annual Population Survey, the UK Office of National Statistics asks a representative sample of adults:

SIDEBAR 8: Well-being in the UK

Every year since 2011, the UK Office of National Statistics has asked a large sample of adults a series of questions to help to understand how people feel about their lives, and to use this as a barometer of citizens' well-being.[49] The personal well-being questions are a part of the wider Measuring National Well-being programme, which aims to look beyond Gross Domestic Product (GDP) at what matters most to people in the UK. The survey asks how satisfied people are with life, the extent to which they feel the things they do in life are worthwhile, how happy they felt yesterday, and how anxious they felt yesterday. People are asked to respond on a scale of 0 to 10, where 0 is 'not at all' and 10 is 'completely'.

After five years, findings show:

- People living in London report lower average ratings of life satisfaction.

- People in Northern Ireland give higher-than-average ratings of personal well-being for all measures except anxiety.

- Women report higher levels of life satisfaction and higher ratings for feeling that things in life are worthwhile – along with higher levels of anxiety – than men.

- Well-being was on an upward trend from 2012 to 2016, but in the last year of that period improvement in ratings for happiness, anxiety and the feeling that things in life are worthwhile came to a stop.

- Overall, how satisfied are you with your life nowadays? On an 11 point scale where 0 is not at all satisfied and 10 is completely satisfied.

- Overall, to what extent do you feel that the things you do in your life are worthwhile? On an 11 point scale where 0 is not at all worthwhile and 10 is completely worthwhile.

- Overall, how happy did you feel yesterday? On an 11 point scale where 0 is not at all happy and 10 is completely happy.

- On a scale where 0 is not at all anxious and 10 is completely anxious, overall, how anxious did you feel yesterday?

By looking at the responses to these measured over time, it is possible to calculate the changes that have taken place in the four feelings.

CALCULATING HAPPINESS: AN EQUATION

We put forward here a simple way to think about calculating happiness: by writing a straightforward mathematical equation. Of course, at first thought, the idea of a happiness equation potentially sounds contrived; if only life were so simple! Even given life's complexity, however, our equation gives a way to visualize using these four feelings to come up with an overall understanding of well-being. We add up self-reported levels of happiness, life satisfaction and worthwhileness of life, and subtracting levels of anxiety - to give a rough calculation of implied, overall well-being in order to track changes over time.

Imagine, for example, that these feelings were weighted equally by people. In that case, we could just formally add the four - happiness (represented by the letter h), satisfaction with life (s), and worthwhileness of life (w) - and subtract anxiety (a). The responses of individuals would give us a representative picture of total well-being (T), and we could compare changes over time.

We could write this mathematically:

$$T \approx h + s + w - a$$

WHICH FEELINGS ARE MOST IMPORTANT?

But if national statisticians are to take any kind of measure of our overall well-being, they face questions about how important any one emotion is compared to another. Are all four emotions equally important in creating a broader well-being picture? Or are some more important? How should a decision be made regarding the relative importance of each of these feelings?

There is, of course, no orthodox way to put marginal social values on feelings such as happiness, life satisfaction, anxiety, and the worthwhileness of life. Yet, it seems particularly odd – even to those of us whose work dwells in the realm of mathematical explorations - to make a mechanical, arithmetical assumption that all four should be weighted evenly. To provide insight into people's thinking about the relative weight that each of these emotions should receive in evaluating well-being, and to illustrate ways that such systems might work, we conducted four small surveys. The results of these surveys are, to the best of our knowledge, the first of their kind.

We presented citizen samples with the following question:

'We are interested in people's opinions on the quality of a society. The UK government is collecting information on the four well-being questions lower down the page. These measure happiness, satisfaction with life, how worthwhile life is, and people's anxiety. We would like to know your view on the relative importance of these for assessing how well a society is doing. We would like you to imagine that you have 100 points to allocate as an indication of the importance of measures of well-being. How would you personally allocate the 100 points across the four measures below? [For example, if you believe all four are equally important, you would allocate 25% to each of the four measures.]'

We put these questions to 650 people in four distinct groups. These groups were not meant to serve as a statistically representative population. They were intended to illustrate how the method might work, and to give us some idea of how certain groups of people might answer these questions. To encourage a high response rate, we did not ask questions about personal characteristics. Our participants consisted of: 1) a group of 76 students attending an economics summer school in 2014; 2) 206 MBA students at INSEAD Business School in France; 3) a wider group of citizens, the 306 people who participated in a web-based, Amazon Mechanical Turk survey; and 4) a group of 52 professional, non-academic economists, all of whom work in the UK.[50] By way of illustration, Figure 1 shows the responses of the largest of the four groups.

Figure 1-1: Considering the relative importance of four aspects of well-being
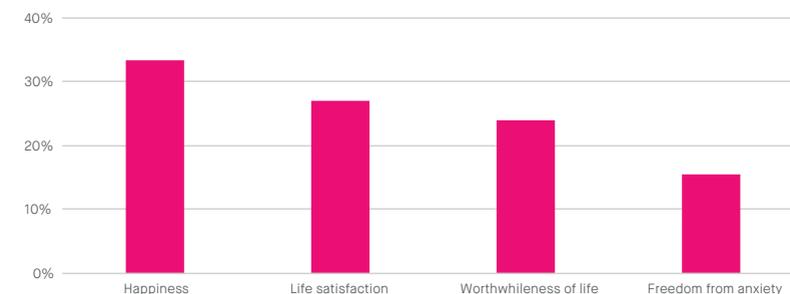
Source: O'Donnell and Oswald (2015).

Our research asked people to give their views on the relative importance of four measures (happiness, satisfaction with life, how worthwhile life is, and people's anxiety) that might be used to assess how well a society is doing. Respondents were asked to imagine that they had 100 points to allocate among the four. The results above show the average weights chosen by a sample of 306 Amazon Mechanical Turk survey respondents.

All groups gave each variable considerable weight, and all groups gave 'anxiety' the lowest rating (not exceeding 20 percent). Opinions differed. Three groups – economists, economics students and business students – gave the most weight to life satisfaction. However, the people who participated in the MTurk survey, shown in Figure 1, put the greatest value on happiness, with life satisfaction rated second. We believe that collecting a large and statistically representative sample of opinions would be a worthwhile pursuit for policy-making purposes.

SOCIAL DECISION-MAKING

Collecting information is one thing, but thinking about how to integrate this information into a government in ways that are in keeping with the democratic spirit is another. Here we offer four ideas of ways we can envision this taking place:

Idea 1. People could be allowed to say how they are feeling, and have their emotions and preferences be taken seriously. The rationale here is that individuals might be seen as entitled to give their own judgments, and to assess their own reported feelings about their lives. Citizens themselves may be the appropriate, and perhaps even the best, judge of themselves. Hence, people's answers in well-being surveys to questions such as, 'How satisfied are you?' might be viewed as offering serious data for use by government statisticians and policy-makers. Such survey answers would then provide valuable raw material for social decision-making.

Idea 2. Citizens could be allowed - possibly after discussion in 'citizen juries' - to choose the weights they believe the government should emphasize. In the design of policies, ethical choices also have to be made. Idea 2 captures the notion that those choices might be put in the hands of individuals in the society. This can be seen as keeping with the spirit of a modern, representative society. One alternative would be to allow politicians to make the choices; a second possibility would be to let experts make the choices. Or a third way forward would be to use citizen juries. Objections might be raised about some versions of Idea 2 on the grounds that citizens are not qualified or able to make the best choices.

Idea 3. Issues could be decided by numerical strength of voting. In any society, an array of opinions is likely to surface about the desirable social weights on objectives of happiness, life satisfaction, anxiety, and so on. To choose among them, one approach would be to rely on the notion of democratic decision making (though we recognize that only rare nations, like Switzerland, use this extensively on individual political decisions). Idea 3 could be viewed as incorporating the notion of one-person-one-vote.

Idea 4. When people's preferences change, government objectives could be allowed to change, too. Our society might benefit from devising a public policy that has a social objective that is more flexible than that of, for example, the maximization of Gross Domestic Product. In well-being terms, aiming for something akin to a simple GDP for well-being would not satisfy this objective of flexibility. As an industrialized society develops it is perhaps natural to allow the concept of success also to develop, along the lines of Maslow's hierarchy of human needs.[51]

USING WELL-BEING AS A GUIDE

One day industrialized societies may formally adopt a policy-making rubric that looks something like this: If a certain well-being gain – of, say, Y – can be achieved by spending £X on one policy or spending a fraction of £X for a different policy, then the higher cost policy is inefficient, and the cheaper alternative ought to be pursued. If this approach were taken to its logical conclusion, the next public spending round in a nation like the UK would consist of the different government departments presenting their sets of policies with estimated costs and well-being benefits, and then choices being made in an attempt to maximize well-being. For example, consider the debate over whether to add a third runway at Heathrow. Under a traditional calculus, this kind of decision is made by looking at economic issues, and the monetary value, alone, whereas a well-being approach would encompass a broader range of considerations – such as environmental aspects. **From our point of view of our research, all government policy needs to weigh human happiness.**

Admittedly, this would be new territory, and it would require innovative thinking. For instance, how would one measure the impact of extra defence spending in well-being? In practice, departments could be asked to submit budgets for 'must do' activities and then list a set of discretionary spending with estimates of their well-being impacts. Ideally, departments could join up to present a suggested policy. For example, consider a proposal to improve education in prison, which would have well-being and financial impacts in many respects, largely because it has the potential to have beneficial spill-over effects by reducing needed spending in other areas of government on recidivism, and unemployment, for example.

Government is a long way from undertaking policy-making in such a fashion, and, as a result, society, is currently some way from experiencing such an outcome.

In the world of affairs, rather than in an economist's equations, what might be the key obstacles to making such a process work?

First, agreement would be needed on a definition of well-being. In the policy field, the estimated impact on GDP is regularly employed as a success measure - this is true even though a large and growing body of research has provided evidence that humans care about relative rather than absolute income. When we think about the paradox – that money seems to buy such little increased well-being, and yet we see people around us striving so vigorously to make more of it – we wonder how this can be the case. The answer may be that what matters to someone who lives in a rich country is his or her relative income. A spectator who leaps up at a football match initially gets a much better view of the game; but by the time his neighbours are up it is no better than before – and perhaps even worse. After all, he now cannot sit, but must stand to keep his view of the game. Thus, our attempts to measure our own happiness will be flawed – and will need to change as we learn more about the complex nature of human happiness.

SIDEBAR 9: Is All Happiness Relative?

'Want is a growing giant whom the coat of Have was never large enough to cover'. – Ralph Waldo Emerson

We compare our successes with those of others. The suggestion has been made that these comparisons have less to do with wealth or income per se than with our status. For instance, public health researcher Michael Marmot has suggested that 'status syndrome', one's position in the social hierarchy, affects people's health, longevity and ability to participate in society.[52] And other research suggests that we compare ourselves not only to our friends, and family members, but also to our past selves and to previous generations.[53]

Recent research suggests that increasing income does not increase happiness – unless one's ranking increases within a comparison group.[54] 'For example, people might care about whether they are the second most highly paid person, or the eighth most highly paid person, in their comparison set (which might contain fellow workers of a similar age and qualification level, neighbours, friends from college…)', according to a recent study by Christopher Boyce, Gordon Brown and Simon Moore.

These studies raise concerns about the pursuit of economic growth a mission. 'There are fixed amounts of rank in society – only one individual can be the highest earner', Boyce and his co-authors note 'Thus pursuing economic growth, although it remains a key political goal, might not make people any happier'.

GDP, too, is a flawed measure. Nevertheless, having one summary measure is powerful and allows compatibility with other, possibly competing, policy options. Part of the problem is presentational: GDP seems to policy-makers like a robust, objective measure and it has been measured for a long time in many different countries, so cross-section and time series comparisons can be made.

Our weighted-well-being approach – though meant here only as an illustration – offers one style of an alternative. This approach – or those that are likely to be suggested by other researchers – raise important questions. Among them:

- Can the economics and social science professions agree on a definition of well-being that is equivalently robust, albeit subjective, and a measure that can be calculated consistently across time and countries?

- Is it intrinsically harder to get acceptance of a subjective measure like well-being than an 'objective' one like GDP?

- Do cultural and linguistic factors matter more for well-being than measures like GDP and therefore make it hard to make cross-country comparisons?

The ultimate desire is for a policy-maker to be able to calibrate different policy options in terms of their likely impact on human well-being – and to do so in both the short and long run. This will require models which explain the determinants of well-being. Once the determinants have been established there will be a desire for new ideas to explore how well-being can be sustainably enhanced and for experiments to provide robust evidence of the effectiveness of different interventions.

WHAT PRICE HAPPINESS?

Implementing a well-being approach in policy raises philosophical and practical issues. Among them:

- **The monetary value of happiness.** How shall we put monetary valuations on factors that influence well-being but do not come with easily read financial value? For instance, what is the financial price for the potential happiness from a marriage, or unhappiness from the loss of a child?[55] Some research, particularly in the context of environmental and health economics, is beginning to address this issue.

- **Present vs. future happiness.** How should we trade off well-being today against the same amount tomorrow? Some policies will create happiness in the 'right now', and others may not show benefits for years. Governments will have to decide about how much of their policies will be present- or future-oriented – in a similar way they undertake decision-making regarding spending and investing on other matters.

- **Total well-being vs. well-being per capita.** Many economists and commentators, for example a recent House of Lords Committee on migration, would support a per-capita formulation. But, in country A, do we really not care about well-being levels of those currently outside A? What about former A residents who are currently living aboard?

- **The distribution of well-being.** Arguably a policy that raises the average level of well-being by X spread evenly across the population is not as good as one that achieves the same average results but has all its effect on those with below average initial well-being. This also has spatial implications. For the UK, it is known that GDP per capita is lower in Wales than England, although, Wales scores well on a number of well-being measures.[56] If we were equally sure that well-being was distributed in the same way, would governments be prepared to adopt policies that reduced well-being inequalities in the two countries? Could we be reasonably confident that policies would deliver this objective, as for many years policies have attempted to reduce geographical income inequalities with mixed results?

- **Different aspirations.** Should governments get involved if, for example Region A has higher well-being but lower average income because the inhabitants of A are less concerned about money and have traded off money for fewer working hours or shorter commuting times? Or, what about Region B, which might make different choices? Many economists might say no, but this perhaps implies living with large income inequalities – and recognizing that subjective well-being might not be the only goal of human activity.

- **Equalising vs. maximising well-being.** Should the goal be to equalise well-being? Some researchers claim that people may choose consciously or unconsciously not to maximise their well-being. It is possible to think of reasons why this might occur: inertia, feelings of obligations, for example remaining close to ageing parents, and people who believe their purpose in life is something different e.g. certain religious groups.

- **Adaptation issues.** Well-being policies should consider the issue of what is called 'hedonic adaptation' - people's tendency to return to a stable happiness level despite major changes and setbacks. On average, though people who lose limbs eventually regain some of their prior level of well-being, disability adaption is not 100 percent, and the extent of the recovery depends on the seriousness of the disability.[57] Does this mean that policy only needs to focus on minimising the well-being loss during the transition period? Should we be attempting to influence what constitutes higher well-being by trying to adapt preferences – for example making it fashionable to drive more energy efficient cars? Governments frequently take 'tastes' as given, but actually through the education system, via the setting of cultural norms and through legislation, they play a role in determining these tastes. At what point does this process become improper?

Sidebar 10: Goodhart's Law and Happiness

In 1975 Charles Goodhart discussed an important issue in monetary policy that has since been named after him. According to Goodhart's Law, whenever a government decides to regulate or to control any particular set of financial assets, the regulation tends to become undermined by changes in behaviour.[58] In common parlance, people find a way to game the system.

A simple example might be a bank that has been asked to limit the supply of a certain financial asset. In response, the bank could develop a new asset that accomplishes the same end but is not subject to government control.

At around the same time that Goodhart reached his insights, Robert Lucas discussed the ineffectiveness of assuming that historical relationships would remain constant after government decided to make use of them in policy. This helped initiate the movement towards developing microeconomic foundations of macroeconomic policy, the objective being to understand not just what is happening in the national economy as a whole but also why it happens, right down to the level of individual decision-makers.[59]

Both ideas have at their heart the idea that economic agents are more than capable of responding to attempts by government to exert control by changing their behaviour. We might then ask, if governments attempt to use happiness data as a guide to policy, perhaps by surveying opinion more regularly or by developing new measures, what is to stop individuals, institutions or lobby groups from acting strategically by changing their behaviour in response to the knowledge that government policy might depend upon what they do?

The response to the challenges of Goodhart and Lucas was to look to the underlying micro-structure of the financial and macroeconomic system, and so develop policy that had a sound theoretical basis, not just on statistical regularities. For policy related to happiness, this means thinking not just about historical relationships but also about the underlying reasons behind happiness at the individual level: the microeconomics or psychology of happiness. It is not a surprise then that CAGE researchers are working on exactly these issues right now.

LOOKING FORWARD

The UK, like some other countries, now collects a variety of measures of citizens' happiness and mental wellbeing. The issue is: which of these should be given the most weight? Should we simply average all of them? Should we put a higher weight on reducing the anxiety scores of UK citizens? And so on. **These are the key intellectual policy issues for the future of Western societies.** Different policy responses may flow from whether, say, a policy strives to enhance happiness or to alleviate anxiety.

Politicians in some parts of the world have begun to tilt the debate surrounding the definition of progress. Their language suggests they are beginning to shift toward thinking about this in new ways - toward ways to add up net well-being, and away from ways that solely add up net income. Thus, it may make sense to allow citizens to determine for governments how well-being should be measured. If the public believes happiness is what matters, then there is a lot to be said for governments taking public opinion seriously when defining well-being. Yet, much remains to be addressed.

Where might well-being policy go in the future? The demand from politicians for policies that raise well-being is high and it is likely to stay high during the so-called period of 'austerity' and into the future. Governments of all persuasions want to keep up, or even improve, public satisfaction with public services while reducing the money spent on them. Traditional solutions focus on reducing costs, for example, by lowering procurement costs. More innovative approaches focus on trying to raise public well-being, for example by preventing problems before they start to cost money.

In the health service, the adoption of behavioural approaches to encourage healthier living is in its infancy. Such programmes have tiny funding compared to the amounts spent on drugs and hospitals. A well-being focus might be likely to shift resources from physical to mental health as the well-being 'bang per buck' is thought to be higher in the latter.

We are acutely aware that real-world politics is moulded partly by ideology, power and constituencies. Budget pressures are a fact of life in government, and even now, with a growing emphasis on evidence-based policy-making, the temptation surfaces to adopt or cherry pick evidence that supports one's preferred policy stance, rather than have prevailing evidence dictate a policy stance and philosophy.

To be clear, the work on conventional economics and the work on the economics of happiness do not always lead to the same policy conclusions. Conventional economics argues that greater GDP will make society happier. But if the criteria are human feelings and genuinely greater well-being, the evidence is mixed. What many economists who work on the subject of happiness believe we would actually need to boost well-being, for example, would be lower unemployment rates and better health. When thought through, these are neither the same as nor guaranteed by higher national income. To improve well-being, we also need to pursue other goals such as cleaner air and shorter commutes and other attributes that conventional economics finds hard to value - in both senses of the term.

For example, what happens when Person A grows richer? If everyone else's income stays fixed, increased riches are likely to make Person A happier. But what if Person A grows richer, and so does everyone else? Happiness research has demonstrated that, in this case, Person A is unlikely to feel any happier. We believe this is because people care predominantly about their relative standing. Thus, when all citizens get richer, it is possible - despite conventional economic wisdom suggesting otherwise - for people to feel no better about their lives. The data support this disruptive idea.

More economics research is warranted on the foundations of well-being policy. Whatever form such research efforts take, we believe these issues deserve further attention.

CHAPTER 2: THE HAPPINESS GENE*

'One brain's blueprint may promote joy more readily than most; in another, pessimism reigns. Whether happiness infuses or eludes a person depends, in part, on the DNA he has chanced to receive' (Thomas Lewis, 'A General Theory of Love').[1]

'While genes are pivotal in establishing some aspects of emotionality, experience plays a central role in turning genes on and off. DNA is not the heart's destiny; the genetic lottery may determine the cards in your deck, but experience deals the hand you can play' (Thomas Lewis, 'A General Theory of Love').[2]

'A devastating, a traumatic defeat, and the Danes might well have fallen into a Treaty of Versailles mentality. Mysteriously, they did not. Instead they redirected their aims and will; they did turn inward. They changed their agriculture from grain to dairy products, they set up cooperatives, gave their attention to social and economic advancement, chose a neutral policy, developed an altogether new kind of adult schooling. It was a chain reaction, but the links gradually forged themselves into a virtuous circuit. It has turned out well' (Sybille Bedford, 'Portrait Sketch of a Country: Denmark, 1962, Pleasures and Landscapes').[3]

SETTING THE SCENE

Denmark – the nation that captivated the world with noir drama ('The Bridge,' 'Borgen'), elegant design, (Arne Jacobson's womb chair, Hans Wegner's wishbone chair), and children's fare (Lego bricks, Hans Christian Anderson's fairy tales) – now basks in the glow of international attention over a single word in its vocabulary: *hygge*.

Hygge, said to be a word unique to the Danish language, has entered the global lexicon. It is, by one count, the subject of nine books published in 2016 alone.[4] The word has been translated variously as the Danish ritual of 'enjoying life's simple pleasures', 'a quality of presence and an experience

of togetherness,' and 'cocoa by candlelight'.[5] It has also been expressed as an equation: Warm + Cozy'.[6] However defined (or pronounced: hue-gah, hew-geh, and heurgha are among the suggestions), the nascent, international allure of this one word is surely the by-product of Denmark's mystique, the result of its reputation as the home of the world's happiest people.[7] (The official Danish tourism board's greeting: 'Welcome to Denmark – happiest place on Earth!'[8])

Since the early 1970s, survey after survey has placed the citizens of Denmark at or near the top of international rankings comparing levels of well-being and life satisfaction by various measures.[9] By contrast, other countries that are also prosperous, and those that have a reputation for enjoying the good life, come surprisingly far down the list. By the same measures, France ranks 32nd, Italy 50th, the UK 23rd.[10]

This phenomenon is one of the famous puzzles of modern social science: What makes the Danes so exceptionally happy?

UNDERSTANDING THE SOURCE OF THE DANES' HAPPINESS

For many years, researchers have sought to explain the reasons for the Danish phenomenon. Few aspects of Danish life have escaped academic scrutiny. Many issues have been and are being explored – and these may contribute to the high happiness rankings of Denmark - but they do not fully explain the phenomenon.

As a result, the mystery of why citizens of Denmark (and other Scandinavian countries) appear to have well-being measures that are much higher than those in other countries continues to elude and intrigue researchers, policy-makers and the public.

Among the avenues of research that have been pursued are:

Income. Denmark is in the wealthy tier of nations – 16th in rankings by the World Bank.[11] But money cannot fully explain the Danish phenomenon. Money can buy certain things that have the potential to make life satisfaction

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* This chapter is based on research listed in the references under Proto and Oswald (2014).
  The authors are also authors of this policy report.

higher. For example, nations with higher levels of per capita GDP might have higher-quality health care, and, thus, longer life expectancies, lower infant mortality rates, and healthier populations. But we have long known that income isn't everything. Nations that are wealthier than Denmark have lower happiness ratings. By the rank of per capita GDP alone, Qatar should be the happiest place, but it ranks a distant 36th by happiness.[12] Other countries with similar levels of affluence do not seem to be as happy. GDP levels explain part but not all of the phenomenon.

Government's role and quality. Recent research suggests that public policies that attempt to insulate citizens from the ups and downs of the market economy appear to promote greater human happiness for all citizens in a nation.[13] Other research finds that higher unemployment benefits are also linked with higher well-being.[14] Still other research has found that people are more satisfied with their lives in countries that have better governance quality, and improvements in this quality have led to large changes in the quality of lives.[15] These findings appear to explain part but not all of the picture.

Social fabric. New analysis of international happiness rankings show that additional benefits arise in nations with strong social fabrics that enable them to better weather economic or other crises.[16] For example, the World Happiness Report published by the United Nations Sustainable Development Solutions Network found that life satisfaction evaluations dropped more steeply in four eurozone countries (Greece, Italy, Portugal and Spain) than could be explained by their large income losses and increases in unemployment.[17] By contrast, despite severe damage to banking systems and to economic performance, average life satisfaction fell only slightly in Ireland and Iceland.[18]

Relatively fewer extremely unhappy citizens. Some research has suggested that the reason Denmark ranks so highly is not that its citizens are so extraordinarily happy – but because it may have fewer people who are extremely unhappy.[19] Research comparing the United States and Denmark, found high levels of well-being in both places – but with extremes more pronounced among Americans, where those in high-

income brackets reported far higher levels of satisfaction and the poor reported much lower levels. 'The key differences in the well-being of these two nations appears to lie in understanding the well-being of the poor', the authors write.[20]

> **Sidebar 1: The Suicide Paradox**
>
> Research (by Mary Daly, Andrew Oswald, Daniel Wilson and Stephen Wu) provides evidence of a paradox: the happiest places tend to have the highest suicide rates.[21] The evidence for this 'dark contrasts' paradox comes from analysis of well-being data and suicide rates in Western nations, and within the United States.
>
> The work finds that this paradox is evident in the happiest locations – and that the trend extends beyond the Scandinavian countries. Nations such as Iceland, Ireland, Switzerland, Canada, and the U.S. display relatively high happiness ratings and high suicide rates. The research shows that the relationship is true in countries with harsh and less-harsh winters, with higher and lower levels of religious influence, and with a range of cultural identities.
>
> Moreover, the paradox is evident among the 50 states within the United States where cultural backgrounds, national institutions, language and religion are relatively similar. Of course, the 50 states are not identical, but comparing different areas of one country provides a more homogenous population than is possible when studying a global sample of nations. The work took into account differences among the states such as age, gender, race, education, income marital status and employment status. Even with these adjustments, a strong correlation emerged between happiness levels and suicide rates. For example, New Jersey ranks near the bottom in adjusted life satisfaction (47th) and has one of the lowest adjusted suicide risks (coincidentally, also the 47th-highest rate). At the other end of the spectrum Hawaii ranks second in adjusted average life satisfaction, and has the fifth-highest suicide rate in the country.

No one knows exactly why this is the case, but the authors believe that unhappy people in a happy place may feel particularly harshly treated by life. Those dark contrasts may, in turn, increase the risk of suicide. This finding is reminiscent of earlier research that found that suicide rates by the unemployed seem to be higher in low-unemployment regions.[22] And, it draws on ideas about the way human beings are believed to rely on relative comparisons when assessing their own happiness. If humans are subject to mood swings, the lows of life may be most tolerable in an environment in which other humans are unhappy.

Language differences. Could the Danes' happiness be explained by some aspect of language, the nuances that give rise, for instance, to *hygge* in Danish but without an exact parallel in another? Researchers worry that the words and phrases 'happiness', 'contentment' and 'satisfaction' have subtly different distinctions in various languages. However, researchers who used Switzerland as a test laboratory for this theory found that German-speaking Swiss, French-speaking Swiss and Italian-speaking Swiss all express higher satisfaction levels than do native Germans, French and Italians.[23] This research suggests that the differences in national well-being are not merely artefacts of translation.

Cultural differences. Some nations may have different beliefs about feelings and emotions and how to express them. The Danes' happiness is one mystery; the unhappiness of the French is another. French natives are less happy than other Europeans, whether they live in France or outside. By contrast, immigrants are not unhappier in France than they are elsewhere in Europe, but their happiness falls with the passage of time and generations.[24] The role of culture is complex. In some cultures and countries it may be far less acceptable to express – or admit happiness. Some research has found that people in Latin nations tend to believe that positive emotions are mostly all good and negative emotions are mostly all bad. By contrast, Pacific Rim nations with a Confucian orientation tend to believe that negative emotions are as good as positive ones; as a result, they do not place a high value on well-being and happiness. Latin nations are much happier than one might expect based on their per capita GDPs, and Pacific Rim countries are less happy.[25]

A combination of such features. The World Happiness report published by the United Nations Sustainable Development Solutions Network takes into account how much of a nation's happiness can be accounted for through six channels: per capita GDP, social support, healthy life expectancy, freedom to make life choices, generosity, and trust.[26] Some research suggests that two primary forces are key: the wealth of a nation; and concomitant human rights, equality and freedom. Social norms are also believed to affect how 'desirable' positive emotions are in cultures.[27]

Errors. Research on so many fronts suggests that the well-being data from Denmark are not the result of some error that has been overlooked or considered properly – though, of course, it is always possible that errors may come to light down the line. However, the same pattern suggesting higher well-being for the Danes surfaces through other channels, among them reported levels of hypertension and psychiatric health – findings that lend power to the notion that some genuine differences are taking place from one nation to another.[28] Nonetheless, some people remain sceptical, and insist that the 'happiness' of the Danes is in itself a myth, reflecting higher levels of complacency rather than genuinely higher levels of happiness.[29]

THE BIOLOGY OF HAPPINESS

Our work here explores the question of what underlies Denmark's well-being scores from an entirely different perspective, a biological one. Broadly, we ask: Is there a biological reason that some nations are happier than others? That is, do the Danes have something 'in their genes' that makes them happier? To our knowledge, we are the first to consider this avenue as a possible way to explain the well-being patterns at a national level.

We can attempt to answer such questions only because of the insights made possible through new technologies and scientific advances in research on the brain's functioning and our DNA. But in an overarching way, our research simply represents a new incarnation of the longstanding nature vs. nurture debate, the question of whether a person's development is largely inherited, the result of his or her genes, or largely acquired through the experience and environment of life.

Both nature and nurture are important. So much so, in fact, that the question of how much behaviour stems from heredity and how much stems from the environment is widely considered to be the wrong question entirely.[30] It is widely accepted now that heredity and the environment do not act independently. That is, nature and nurture do not operate each in a separate way, but instead interact in a complex manner.[31]

Genetics has been known to play a role in the well-being of individuals. Neuroscientists have found close linkages between reported happiness and the brain's levels of dopamine and serotonin, chemicals that transmit signals from one neuron to another. Genes seem to play a major role in regulating the levels of these chemicals that affect mood and emotion.[32]

Studies of twins also support a genetic role.[33] The most famous of these compared the reported levels of happiness for 1,300 sets of identical and fraternal twins, some raised together, and some raised apart. Identical twins reported similar levels of happiness; fraternal twins showed more variation in their happiness levels.[34] The researchers concluded that genetic factors can account for nearly half of happiness. The other half would then be determined by life's everyday ups and downs. Research theorises that everyone is born with a certain 'set point' for happiness. Tragedies and pleasures might affect levels of happiness, but eventually a person returns to a genetic set point.[35]

Sidebar 2. The U-Shape of Happiness

Research by David Blanchflower and Andrew Oswald and others has shown that human happiness follows a U-shaped curve over the course of our lifetimes.[36] Happiness is generally high in youth. It falls to a nadir in middle age, when suicide risk and antidepressant use are greatest.[37] Happiness levels then rise again in old age. This appears to be a universal experience. The U-shaped curve has been found among the populations of 72 countries – evident on both sides of the Atlantic, in Eastern European, Latin American and Asian nations, and among developed and developing economies. The U-shaped curve in Britain is illustrated in Figure 2-2.

No one knows what causes this pattern. People tend to think that the sagging middle of the 'U' must be the result of socioeconomic forces, the burdens that come with middle age (children, aging parents, mortgages and the like). But the pattern emerges regardless of one's economic or social circumstances. Men and women, single and married people, rich and poor, and those with and without children all experience this same pattern with a slump in mid-life.

Exactly why happiness rebounds in later years is a mystery, too. Perhaps people learn to adapt to their strengths and weaknesses, and in mid-life quell their infeasible aspirations. Perhaps cheerful people live longer. Perhaps people who have seen similar-aged peers die begin to value their own remaining years. Perhaps people learn to count their blessings in their remaining years.

Some researchers believe that the U-shaped pattern arises from another source, from something inside human beings. Additional work on this subject reinforces the belief that the U-shaped curve results from something more than the pressures of middle age.

In a study in 2012, a team of researchers (including Andrew Oswald) found a similar U-shape happiness pattern exists among our evolutionary cousins, the great apes.[38] These studies were conducted among chimpanzees and orang-utans whose well-being was assessed by caretakers familiar with the individual apes. The work showed that apes also exhibit a 'midlife crisis'.[39] Of course, these findings do not rule out the possibilities that species-specific social, cultural and psychological forces are at work in human and great ape patterns. However, the finding that the U-shaped well-being curve is not uniquely human raises the possibility that its origins may lie partly in our shared biology. As Charles Darwin himself observed, 'He who understands baboons would do more towards metaphysics than Locke'.[40]

Figure 2-1. Mean life satisfaction by age in the British Household Panel Survey, 2004

Source: Clark and Oswald (2006).

Human happiness follows a U-shape over the course of life. The horizontal axis shows age, and the vertical axis shows levels of life satisfaction. Happiness is highest in life's early and twilight years, and lowest in middle age. This pattern has been found in 72 countries worldwide. Research has also documented a similar pattern for humans' evolutionary cousins, the great apes.

'NURTURE' PLAYS A VITAL ROLE

But none of this means that we should take a fatalistic view. Though science has yet to unravel the complex interplay of genes and the environment in our well-being, life's events clearly play a part. Research clearly demonstrates a wide variety of forces affect our well-being.

People who become unemployed become unhappier – and they remain so for a long time afterwards.[41] The experiences of widows and widowers show that the death of a partner leads well-being to fall and to remain at lower levels for years after a partner's loss.[42] Happiness increases, some research suggests, with the simple act of writing down a 'gratitude list'.[43] Other research suggests that 'positive psychology' interventions can have long-lasting effects on reducing depression and increasing happiness.[44] CAGE research (by Redzo Mujcic and Andrew Oswald) shows that happiness gets a boost from healthy eating habits. This work found that eating fruit and vegetables increases mental well-being - and even more than it improves physical well-being.[45]

Sidebar 3. The Happiness Diet

A small but growing area of research suggests that eating large amounts of fruit and vegetables is linked not just with better physical health, but also with better mental health. In addition, the findings suggest that people experience the mental health benefits from healthy eating quickly – years before they experience the physical benefits that tend to accrue down the line.

The benefits suggest that eating certain foods is an investment in well-being – and that the more immediate psychological benefits could serve as an incentive for people to make the effort and investment in eating more produce.

Though the findings cannot clinch the argument to prove that eating a lot of produce *causes* better mental health, the suggestive evidence is powerful. At a minimum, the question of how the foods we eat affect our mental well-being merits serious consideration – particularly for mental health professionals and public policy-makers.

Among the research that has addressed this issue:

Recent research by Redzo Mujcic and Andrew Oswald examined data from food diaries for a random sample of more than 12,000 Australian adults for a period from 2007 to 2013, and found that increased fruit and vegetable consumption was predictive of increased happiness, life satisfaction and well-being.[46] They took into account changing incomes and personal circumstances that might affect happiness and life satisfaction. Nevertheless, the life-satisfaction boost from an increase of eight portions of fruit and vegetables per day provided a psychological gain equal to moving from unemployment to employment. Improvements occurred within 24 months – too quickly to be a reflection of the physical advantages of diet for outcomes such as cardiovascular disease.

In addition, they examined the effects of Australia's 'Go for 2&5 Campaign', which promotes the physical health benefits for adults of eating two servings of fruit and five servings of vegetables daily. The campaign, which was rolled out across the states of the nation, offered an opportunity to measure the effects of the campaign as citizens of each region experienced different levels of 'publicly sponsored push' to eat in a healthy way. The research found evidence that the campaign had a positive effect on fruit and vegetable intake. The work also found some evidence that the campaign may have improved people's levels of life satisfaction and happiness; however, it is not possible statistically to be certain of that conclusion.

Other research supports these findings, and some work suggests that the psychological benefits of healthful eating are almost immediate. Research by David Blanchflower, Andrew Oswald and Sarah Stewart-Brown has found the same pattern in the British population, with well-being peaking at approximately seven portions of fruit and vegetables per day – regardless of many demographic, social and economic factors that we take into account.[47] Another study that analysed data from the daily food diaries of 281 students over a three-week period found that a high level of fruit and vegetable consumption appears to be predictive of greater emotional well-being on the following day.[48] Yet another study using data from 405 young adults who completed a daily Internet food diary for 13 consecutive days found a connection between consumption of fruit and vegetables and other indicators of well-being beyond happiness and life satisfaction. Those who ate more produce experienced greater levels of what is known as eudaemonic well-being - a state of flourishing characterized by feelings of engagement, meaning, and purpose in life – and higher levels of curiosity and creativity.[49]

The channels from eating certain food types to subjective well-being remain to be properly understood. Other studies discuss a variety of intriguing possibilities – such as the possible influence of vitamin B12 upon the eventual production of human serotonin, a chemical the body produces that is thought to influence mood; the role of 'gut flora' in modulating brain chemistry, and antioxidant research showing a possible connection between human optimism and carotenoid in the blood.[50] Further connections between the biology and practical public health policy of healthy eating remain to be forged. Such issues demand attention.

Figure 2-2. How life satisfaction responds to increased consumption of fruit and vegetables

Source: Mujcic and Oswald (2016)

Recent research that examined data from food diaries has found that eating more fruit and vegetables was predictive of increased happiness. The horizontal axis shows the change in the portions of produce eaten, and the vertical axis shows the changes in self-reported levels of life satisfaction. The life-satisfaction boost from an increase of eight portions of fruit and vegetables per day provided a psychological gain equal to moving from unemployment to employment. Improvements occurred within 24 months – too quickly to be a reflection of the physical advantages of diet for outcomes such as cardiovascular disease.

The studies of twins that documented the power of genetics also underscored the relevance of the environment. The most recent meta-analysis of all twin studies available through 2015 suggests that genetic factors explain roughly one-third of the well-being levels – a finding that would leave two-thirds of the reported levels of well-being and life satisfaction as the result of environmental influences.[51] International studies show that the rates of major depression are increasing for all ages in ways that cannot be explained by increased reporting – suggesting that it may be a 'rising cost of modernity', the result of something beyond genetics.[52]

Moreover, happiness doesn't operate in isolation from other people. Recent research suggests that people's happiness depends on the happiness of others with whom they are connected. This work provides powerful justification for viewing happiness as a collective phenomenon. Work by James Fowler and Nicholas Christakis on social networks finds clusters of happy and unhappy people.[53] Their work shows that the relationship between people's happiness extends up to three degrees of separation (for example, to the friends of one's friends' friends), and that people who are surrounded by many happy people are more likely to become happy in the future. The research suggests, too, that clusters of happiness result from the spread of happiness, and not just as a result of a tendency for people to associate with similar individuals. This underscores that happiness isn't 'fixed' by one's genes.

Sidebar 4. Happiness Networks

Recent research by James Fowler and Nicholas Christakis suggests that happiness is contagious.[54] The findings show that whether an individual is happy depends in part on whether others in the individual's social network are happy. Happiness, thus, is a 'network phenomenon' that clusters in groups of people. This happiness spreads among networks that extend up to three degrees of separation – for example, to one's friends' friends' friends. Happy people tend to be located in the centre of their local social networks and in large clusters of other happy people.

Happiness, in other words, is not merely a function of individual experience or individual choice but is also a property of groups of people. Indeed, changes in individual happiness can ripple through social networks, giving rise to clusters of happy and unhappy individuals. These results are even more remarkable considering that happiness requires close physical proximity to spread and that the effect decays over time.

No one knows exactly how happiness spreads. Happy people might share their good fortune (for example, by being pragmatically helpful or financially generous to others), or behave in different ways toward others (for example, by being nicer or less hostile), or merely exude an emotion that is genuinely contagious (albeit over a longer time frame than previous psychological work has indicated). Another possibility is that being surrounded by happy individuals has beneficial effects on the interaction between our psychological processes and our nervous and immune systems.

The findings suggest that policies that increase the happiness of one person might have 'cascade' effects on others, thereby enhancing the efficacy and cost effectiveness of the intervention. For example, illness is a potential source of unhappiness for patients and for those individuals surrounding the patient. Providing better care for those who are sick might not only improve their happiness, but also the happiness of numerous others, thereby further vindicating the benefits of medical care or health promotion.

DANISH GENES

Against this background, we take the nature and nurture discussion to another dimension. We examine – cautiously - whether genetic makeup affects the happiness levels of entire nations, rather than just of individuals. No previous research has explored whether there may be a national equivalent. We ask, essentially, whether the Danish people's high levels of happiness stems from a genetic source.

This is an avenue that we originally found implausible, but to our surprise, we uncover evidence that supports the notion that genes do play a role in explaining the Danish happiness characteristics in particular – and, for all of us as human beings more broadly. Though we underscore that our findings should be taken with caution, our work shows that even when one takes into account factors such as prosperity, culture, religion, and geographical position in the world, genetic factors stubbornly remain part of the mix. The finding surprised us.

THE CHOPSTICKS PROBLEM

Our work takes great care to address a potential problem that geneticists sometimes refer to as the 'chopsticks problem'.[55] Genetic studies conducted on populations that are not random may lead to false conclusions. This is called the 'chopsticks problem', a term coined after two molecular geneticists, Eric Lander and Nicholas Schork, used a memorable example to describe the issue.[56] Their 1994 article explained the potential concern this way: If you conduct a gene study of residents in San Francisco, you might find a gene that correlates with using chopsticks. However, that gene might not have anything remotely to do with utensil habits. It might be related to the fact that most of those studied are of Asian heritage.

With this issue in mind, we examine the issue of the role of genetics in the Danish happiness picture via three different routes:

- **Genetic proximity:** Scandinavian countries, which generally rank highly in well-being comparisons, are genetically similar. Do genetics or other similarities - such as geography or Scandinavian culture or government – explain similarly high levels of well-being?

- **Genetic variation:** Certain genetic mutations are believed to play a role in the mental health and well-being of individual people. Can these also explain happiness ratings on a national level? We examine whether Danes may be genetically 'predisposed' to have higher levels of happiness.

- **Genetic ancestry:** If genes play a role in our life satisfaction, then evidence of this should survive for generations. To test whether a predisposition for happiness is genetic, and, thus, can outlive place and time, we examine whether the levels of well-being of Americans vary according to the happiness levels of their ancestors' countries of origin.

GENETIC DISTANCE FROM DENMARK

When we analyse 'genetic distance', we investigate how closely related or how divergent populations are from one another. Populations with similar genetic variations are said to have small genetic distances; those with genetic variations that differ have large genetic distances. Scientists use these measurements for a wide variety of purposes – to understand biodiversity, for instance, and to look at populations' history. We use a standard measure that has been used for more than 40 years to evaluate the divergence in genes over time.[57]

We then examine the relationship between genetic distance from Denmark and well-being, as measured by many well-known, international surveys that provide information on hundreds of thousands of randomly selected individuals from 143 nations.[58]

The following figure plots a measure of unhappiness in the populations of 131 countries – the extent to which a person is found to be psychologically 'struggling' -- against genetic distance from Denmark. The figure shows a statistically significant positive correlation: the proportion of people in a country that is 'struggling' increases as the population's genetic distance from Denmark increases.

Figure 2-3. Psychological "struggling" and genetic distance from Denmark across 131 countries

Genetic distance from Denmark in logarithms (Nei, 1972)
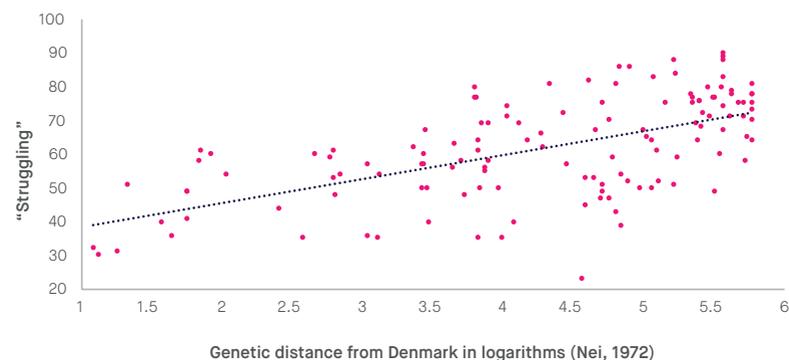
Source: Proto and Oswald (2014).

This is a plot of cross-national data on well-being against genetic distance. The source is data from the Gallup World Poll. On the vertical axis is a variable for (low) psychological well-being in a country. It is 'struggling', as defined by Gallup rather than by us, which is a cross-national variable for the percentage of individuals in the country who report that their present life situation is between 5 and 7 on a ten-point scale and who report the perceived quality of their future life as between a 5 and an 8. On the horizontal axis is plotted Nei's genetic distance measure, which is defined here as distance from Denmark.

Most international tables rank the Scandinavian countries highly for well-being levels. Scandinavian countries also have small genetic distances from Denmark. However, this doesn't prove a relationship between their genes and happiness. Scandinavian countries are similar to Denmark in other ways – in terms of their culture, their prosperity, their geographic position in the world, and their generous welfare states. In short, we need to take into account many other facts that could be at work beyond or instead of genetic distance. So, we take into account many other forces that might account the similarities to see if they could be responsible for the similarities in happiness levels of Scandinavian countries. Among the factors we take into account are: GDP per capita, the geographic position of the country, education, culture, religion, the generosity of the welfare state, the level of government protection from market forces, the quality of countries' institutions (perception of the degree to which there is corruption), healthy life expectancy, the freedom to make a choice and

social support and generosity (the extent to which there is a culture for charitable donations).

No matter what factors we take into account, the larger the 'genetic distance' from the genetic stock of Denmark, the lower the country's life satisfaction. This is not to suggest that other factors are irrelevant; nevertheless, we underscore – again with some caution - that none of these other forces rules out a genetic role in well-being differences found among countries.

Sidebar 5: Bhutan's Gross National Happiness Index

The Kingdom of Bhutan, a largely Buddhist country of just 750,000 people on the eastern edge of the Himalayan mountains, seems an unlikely candidate for a global trendsetter. Isolated for centuries, it only began to open up to outsiders in the 1970s. Yet, in that same decade, the Fourth King of Bhutan captured the essence of what would later become a subject at the vanguard of international policy debate and interdisciplinary academic research.

'Gross National Happiness', His Majesty Jigme Singye Yangchuck declared in 1979, 'is more important than Gross National Product'.[59]

This captivating statement lends Bhutan a special place in the history of the global movement to re-think how governments should measure socioeconomic progress.[60] Bhutan became the world's first nation to craft an alternative measure. Its Gross National Happiness Index eschews the GDP standard, and re-defines socioeconomic progress in terms of improving the 'physical, mental, emotional and spiritual' well-being of people, and enhancing the sustainability of the environment.[61]

Bhutan faces ongoing questions about whether its index represents a meaningful public-policy tool, mere hype, or a means of distraction from many other important challenges - including poverty (per capita GDP is 112th among 183 nations), a poor human rights record, and a lack of many basic, democratic freedoms and rights for its citizens.[62]

Nevertheless, Bhutan has been recognised as a forerunner of what has since evolved into an international movement. Bhutan now champions an international campaign to craft a 'new development paradigm'.[63] In 2011, the United Nations General Assembly adopted the Bhutan-initiated Resolution 65/309, 'Happiness: Towards a holistic approach to development', underscoring that setting happiness as a goal embodies the spirit of the UN's Millennium Development Goals. The resolution invited member states 'to pursue the elaboration of additional measures that better capture the importance of the pursuit of happiness and well-being in development with a view to guiding their public policies'. That year, Bhutan hosted the U.N.'s High-Level Meeting on Wellbeing and Happiness.[64]

GENES THAT INFLUENCE INDIVIDUAL WELL-BEING

Researchers are still investigating the interplay of nature and nurture in the mental health and well-being of individuals. Depression and other mental health problems are likely influenced by many different genes and by many different situations. A key – and controversial - discovery in this field emerged in 2003, when scientists led by Avshalom Caspi at the Social, Genetic & Developmental Psychiatry Centre at King's College London identified a version of a common gene that appears to make people more likely to experience depression in the face of stressful life events.[65] The findings provided powerful evidence of a 'gene-by-environment interaction' – that is an individual's response to stress is believed to be moderated, or exacerbated, by his or her genetic makeup.[66]

The gene in question is for a chemical transporter called 5-HTT. This gene received attention because it fine tunes the transmission of serotonin in the brain. Serotonin is a neurotransmitter, a 'chemical messenger that carries, boosts, and modulates signals between neurons and other cells in the body'.[67] Serotonin, considered to be a contributor to well-being and happiness by affecting mood, is itself affected by the antidepressant Prozac and others drugs of similar ilk. The scientists' work on 5-HTT involved two common genetic variations, or alleles (pronounced uh-

LEELS). Alleles for 5-HTT have two common versions: long (l) and short (s). We all have two alleles – one inherited from our father and one from our mother. The researchers found that the negative effects of adverse life experiences such as romantic disasters, bereavements, and job crises were stronger among people with one 's' allele and stronger still for those with two 's' alleles. Those with two 's' alleles who had experienced four or more stressful events were more than twice as likely to suffer depression than those with two 'l' alleles who had faced similar experiences. The journal Science neatly encapsulated the discovery with the headline, 'Getting the Short End of the Allele'.[68]

The study has generated controversy. Large-scale studies failed to replicate the findings, and other genetic forces are also coming to the fore as possible sources of mental health problems.[69] (For instance, recent research concluded that people with disorders traditionally thought to be distinct – autism, ADHD, bipolar disorder, major depression and schizophrenia – are likely to share a certain variation of two genes that regulate the flow of calcium into cells.[70])

Using information from 30 nations, we examine the proportion of the population with the 'short' version of this allele. We find a link between lower happiness of nations and the proportion of their populations with the short allele version of the 5-HTT gene. Denmark, which has the highest levels of satisfaction with life, also has the lowest percentage of citizens with the short allele. Italy, by contrast, has the lowest recorded level of satisfaction with life (among the 30 nations), and the highest proportion of citizens with the short gene. This relationship appears to be more powerful than our first, 'genetic distance' measurement.

Depression and mental disorders affect the lives of the individual, of course, but they also influence the lives and happiness of others. Families and friendship networks are affected, and, as a result, genes that influence individual well-being could have larger effects at the community-level than at the individual level.[71]

A HAPPINESS INHERITANCE

Here we look at the Danish happiness question by asking, essentially, whether differences in well-being are heritable. Do the genes we inherit, by virtue of our ancestors' countries of origin, influence our levels of life satisfaction?

One of the unusual advantages of a genetic influence is that in principle it should be visible even if historical measures are used. The straightforward reason is that genetic factors necessarily change only gradually. Genetic patterns inherently stem from a previous era.

Our work examines the happiness of U.S.-born individuals in the context of the country of origin of their families. Using data from the U.S. General Social Survey, we analyse the well-being levels of Americans who are second-generation immigrants from 29 countries. We look to see whether the well-being levels among Americans whose ancestors arrived from a certain country correlate with the well-being levels in their ancestors' homelands. For example, to look at the relationship for Americans who report that they have family origins in Italy, we create a measure derived from the happiness level of current Italian-Americans. Our aim is to see if international well-being patterns survive in the well-being patterns of immigrant descendants – a finding that would provide evidence of a genetic influence.

Again, we take into account other issues that might affect the outcome – including age, gender, income, education and religion. Nevertheless, we find a correlation between the happiness levels of people in these 29 countries of emigration, and the happiness of Americans who are second-generation immigrants from those countries. Descendants from happier countries are happier – a result that supports a genetic explanation.

KEY FINDINGS

We note that our findings are preliminary and they should be taken with caution, particularly in light of ongoing research into and evolving understanding of the biological underpinnings of human happiness. A great deal more research is needed.

That said, these three measures – genetic distance, variation and inheritance – do provide evidence that genes play a role in happiness. Our findings are both statistically and practically significant. That is, genes matter, and genes matter enough for us to care. The data on genetic distance place an upper limit, or maximum value, on the role played by genetic variation. The maximum value is around one third, and the true value may well be less. All the rest of the variation in happiness must be explained by circumstances that are not genetic, and are therefore to some degree under the influence of society and policy.

At the risk of stating the obvious, our genes are fixed, and some of us may have more of a biological vulnerability that makes coping with life's stressful events more difficult. Our happiness is surely a result of the complex interaction between our genetic material and our life environment. Much about the relationship between the two remains unknown, and the subject warrants further exploration. Even if, as our research tentatively suggests, as much as one third of the variability in the happiness of an individual – or an entire nation – stems from genetic influences, then the majority of our happiness comes from other sources. This leaves ample room for policies to attempt to help individuals and societies cope with the myriad other issues that affect human happiness. The biology of people – and of nations – is not destiny.

CHAPTER 3: HAPPINESS THROUGH HISTORY*

'Happiness is the meaning and the purpose of life, the whole aim and end of human existence'. – attributed to Aristotle[1]

'There are two ways of being happy: We must either diminish our wants or augment our means – either may do – the result is the same and it is for each man to decide for himself and to do that which happens to be easier...and if you are very wise you will do both in such a way as to augment the general happiness of society'. – Benjamin Franklin[2]

'Unquestionably, it is possible to do without happiness; it is done involuntarily by nineteen-twentieths of mankind'. – John Stuart Mill[3]

SETTING THE SCENE

Picture 1950s Britain: one in five households contained a washing machine, one in 10 a telephone, and one in 20 a refrigerator.[4] Very few households had central heating, and more than half did not own a television.[5] Two-thirds of those employed were men, generally working a 48-hour week.[6] Life expectancy was 66 for men, 71 for women.[7] Per capita Gross Domestic Product (GDP) – the value of goods and services produced per person in the UK – was £8,448 in 1957, measured in 2012 pounds.[8] Giving a speech to a small group gathered at Bedford Town's football grounds in that same year, Prime Minister Harold Macmillan uttered what would become the defining phrase of the era: '...let us be frank about it - most of our people have never had it so good. Go around the country, go to the industrial towns, go to the farms and you will see a state of prosperity such as we have never had in my lifetime - nor indeed in the history of this country'.[9]

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* This chapter is based on research listed in the references under Hills, Proto, and Sgroi (2015). The authors are also authors of this policy report.

Sidebar 1. That which makes Life Worthwhile

'Even if we act to erase material poverty, there is another greater task, it is to confront the poverty of satisfaction - purpose and dignity - that afflicts us all. Too much and for too long, we seemed to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product, now, is over $800 billion dollars a year, but that Gross National Product - if we judge the United States of America by that - that Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children. Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile. And it can tell us everything about America except why we are proud that we are Americans. If this is true here at home, so it is true elsewhere in world'. – Robert F. Kennedy, remarks at the University of Kansas, March 18, 1968[10]

Picture 21st Century Britain: Almost all families have a washing machine, a television, and central heating. Surveys about pervasive modern conveniences (such as refrigerators) have been abandoned to track the prevalence of personal computers, mobile phones, and Internet service – the now nearly ubiquitous totems of modern life unknown 60 years earlier.[11] Women represent nearly half of the UK's workforce.[12] People typically work a 37-hour week,[13] and paid holiday time has roughly doubled.[14] People live

longer and in better health than ever before, with life expectancies of 79 for men and nearly 83 for women.[15] In 2015, the United Kingdom's per capita GDP reached an all-time high of £27,505, in 2012 pounds, more than three and a half times its 1957 level.[16]

And yet, the 1950s - a decade defined by comparably meagre living standards, and far less-tolerant social views - was one of the happiest eras on record in the life of the UK people. The British people never again reached anywhere near the levels of happiness in society at that time. These new insights, which emerge from our research, lead to a question: Why?

THE RELATIONSHIP BETWEEN GROWTH AND HAPPINESS

This question of why tremendous economic growth over the decades has failed to make the UK a happier society underscores a puzzle that researchers have sought to solve for more than four decades. Time and again, research has found that societies now are no more satisfied with their lives – and sometimes are less satisfied – than when the population had far less - less money and free time, fewer things and fewer conveniences. This phenomenon is not exclusive to the UK. The same pattern has been documented in more than three dozen countries, among them nations categorised as developed, developing, and in transition to market economies. Rising national income, it seems, buys little in the way of national happiness.

This is not to say that economic forces play no role in people's lives, or that income is completely irrelevant. Obviously, a person - or a nation - that cannot provide for basic needs will experience tremendous unhappiness. The point is that unprecedented economic prosperity in many parts of the world has not led to commensurate increases in happiness; by contrast, at some periods the economy grows, yet happiness falls. These observations raise the question of whether economic growth really ought to be the main goal guiding nations and their policy-makers.

Sidebar 2. What Lottery Winners Reveal about Happiness

One of the most fundamental ideas in economics is that money makes people happy. But the relationship between income and happiness is a complex one, as well demonstrated by research on lottery winners.

Common wisdom suggests that winning the lottery initially makes people happy but that such an effect on well-being quickly erodes as individuals adapt to a new standard of living. A 1978 study suggested as much – finding that lottery winners were no happier than those who had not won - and that they took significantly less pleasure from mundane tasks.[17]

But additional CAGE research that examined larger groups suggests otherwise. In research that looked at a representative sample of Britons who received financial windfalls (by winning the lottery or receiving an inheritance), Jonathan Gardner and Andrew Oswald found that these people had higher mental wellbeing in the following year.[18]

Another CAGE study, conducted by Andrew Oswald and Rainer Winkelmann in Germany, followed randomly selected people before they won the lottery and for some years afterwards. They found that almost three years passed before the winners enjoyed their money. They believe that this is because, initially, people do not feel they deserve the windfall. They only come to enjoy the money after persuading themselves of their own 'deservingness'. If this is the case, the authors note, the findings undercut the adage that 'a dollar is a dollar'.[19]

Other research examining British lottery winners found positive effects on mental health, but also found that this was offset by increases in risky health behaviour, such as smoking and drinking alcohol.[20]

And, additional recent research from Germany found that self-reported mental health declined immediately after winning the lottery - but only for people with low educational attainment and low financial literacy. For those with high educational attainment and financial literacy, winning the lottery did not appear to affect well-being.[21]

TURNING TO HISTORY FOR INSIGHTS

The approach we take here is to bring historical perspective that has been missing from our understanding of the relationship between happiness and economic growth.

The paradox between economic growth and society's happiness is a product of contemporary understanding of information generated in contemporary times. As a result, researchers have wondered whether the failure of economic growth and human happiness to move together might be some kind of mistake – a misunderstanding or misinterpretation, or, an aberration in the annals of history, some quirk of modern times. How can we really know about happiness over time without an adequate time frame?

Another question arises over international comparison. The research into the paradox is often expressed as cross-sectional; that is, the work might find that when comparing any two countries at the same point in time, the happier citizens are as likely to be in the poorer country as in the richer one. But to make such a comparison, many important national characteristics need to be considered: institutions, democracy, education, culture, language, and demographics. Statistical controls can go some of the way towards addressing these issues, but the concern remains that something might be missed.

Only by examining the same country over time can we gain greater confidence that everything from language to cultural values are readily comparable. Of course, culture in Britain changed dramatically from 1800 to 1900. But by proceeding incrementally, time-series research has an edge over cross-sectional data. For example, British culture likely remained similar from 1999 to 2000. At least for short-run comparisons, we do not need to worry about the comparability of nations.

At the same time, looking at changes over time offers us a way to gain insights about what made earlier societies in various nations happy – or unhappy – as a way to help us understand our modern condition. If the disconnect between national income and national happiness were to appear to be an aberration or a relatively recent phenomenon, research

might go on to explore what took place to break the link. If the paradox were to appear to be present over the centuries, however, then we would have more reason to presume its validity in contemporary society. This information would go a long way toward settling ongoing debates about the existence of the paradox – and it would also provide more reason to pursue alternative ways of thinking about how to pursue and quantify socioeconomic progress in other terms.

The fledgling state of well-being data has limited our collective ability to understand how well-being responds to different historical events. This has, in turn, limited the use of well-being in public policy, health initiatives, and financial decision making. People find it difficult to understand how they will feel in the future – and with this also comes a limited capacity to understand how prior events and decisions influenced our past happiness.[22] Informed, historical accounts of past well-being will be important as governments and other agencies understand how to undertake and use 'emotional accounting'.

Our quest, then, was to find a way to examine the issue from both sides: levels of GDP on the one, and levels of reported happiness, on the other – and both going back for hundreds of years.

On the matter of GDP, researchers have found ways to document the economic growth for economies long gone. Though Gross Domestic Product is a relatively modern concept, devised as a way to combat the Great Depression of the 1930s, the work of economic historians now provides estimates for GDP going back to 1820 for the world over.[23] New work rolls back GDP figures much further for select countries, such as the UK and Holland,[24] and some historians are even attempting to provide estimates of world economic growth from AD 1.[25]

The key challenges researchers face when undertaking such an economics excavation are considerable. Major goods and services in the 1800s changed radically over the past 200 years – evolving in revolutionary ways in practically every respect - from buying candles and firewood for lighting and heat, to paying the bills for electricity and gas central heating; from

buying and repairing tailor-made clothes to buying ready-made clothing produced in factories worldwide; from relying on foods that were grown largely near home, to buying foods at a supermarket that imports them from around the planet. As a result, trying to compare income – which we might reasonably define in terms of what it can be used to purchase - is difficult. The work relies on careful consideration of historical records, a key group of necessities, and an evolving basket of goods. Researchers have reached a point with these tasks that allows for routine uses of estimates of historical GDP on a daily basis.

We then come to the matter of happiness: The problem in the construction of something similar for a historical timeline of happiness is the seeming absence of anything like the data available on wages over time: Researchers on happiness and well-being rely largely upon a modern tool, the questionnaire, as the prime source of data on the level of happiness in a given population. The best-known example of this is the U.S. General Social Survey, which gathers data on contemporary American society to monitor and explain trends and attitudes. Since 1972, this survey has asked a representative group of Americans, 'Taken all together, how would you say things are these days – would you say that you are very happy, pretty happy, or not too happy'?[26] Similar questions on similar surveys have been put to people in countries all over the world (though there are many variations of this basic question, and different ranges of options for answers). But no one had ever put this question to the people we wanted to survey – among them, Victorians in Britain, the Italians living under Mussolini, the residents of Germany after World War II, or the American revolutionaries in the early days of the original 13 colonies. No amount of meticulous historical research could change this, and yet we needed to find a way to 'survey' our ancestors.

NEW TECHNOLOGICAL POSSIBILITIES

Fortunately, research has advanced in ways that make it possible, if not to interview our long-gone ancestors, then to find other ways of learning what their contemporaries had to say on the subject. Computing advances make information of vast quantities and complexity – so-called 'Big Data'

– manageable. Computational linguistics, a line of research that uses computer-science techniques to analyse language and speech, turns words into a newly potent research tool - and to such a degree that words themselves are in some senses the sciences' new data.[27] Moreover, as we and anyone else using the Internet cannot help but notice, digital versions of books from all eras are now widely available online, extending back, for instance, as far as the earliest fragments of Latin Verse.[28] The Google Books corpora[29] contain an enormous cache of word-frequency data from hundreds of billions of words used in more than 8 million books that have been digitised – an enormous storehouse, but one that, vast as it is, represents just about 6 percent of all books.[30]

Together, these technologies give us a way to explore the subject of societal happiness far further back into history than previously possible. We sought to use the words from published writings to serve as our 'survey' of public sentiment and measure of happiness. This offered us a way to test, first, whether the writings of the day could, indeed, accurately gauge the public mood; and, second, whether levels of happiness ebbed and flowed over the course of history in pace with economic growth or in sync with other events. That is, first, we could check the validity of our method over a modern time frame. We could compare our 'published words'-based happiness results with the survey-based happiness results that have been recorded since the early 1970s. Then, if our system passed this test, we would be able to see when life satisfaction grew or diminished against the backdrop of key events, among them: wars and other conflicts; economic events such as growth or contraction of GDP, recessions, and the Great Depression; increasing democracy; changes in infant mortality and longevity. We envisioned creating a new way of looking at life satisfaction: a timeline that could tell us how people felt about their lives over the centuries as great economic, medical, social, and political changes and outright upheaval took place.

DECODING THE MOOD OF WORDS

Research into the economics of happiness often blurs the boundaries between one science and another, and our historical work offers a case in point. Our work interpreting public sentiment based on published words

relies on long-standing concepts from psychology. Our interpretive tool here is valence, a concept psychologists use to capture positive and negative feelings and emotions. Something considered attractive has positive valence; something undesirable has negative valence.

Sidebar 3: Emotions in Words

We use the term valence to signify the emotion contained in a word (rather than in a phrase). The valence ratings are on a scale of one to nine. A higher rating shows that the word is associated with more positive emotions. A lower rating shows that it is associated with more negative emotions. Examples follow.

A selection of high-valence words:

Happiness	8.53
Enjoyment	8.37
Vacation	8.53
Joy	8.21
Relaxing	8.19
Peaceful	8.00
Lovemaking	7.95
Celebrate	7.84

Some low-valence words:

Murder	1.48
Abuse	1.53
Die	1.67
Disease	1.68
Starvation	1.72
Stress	1.79
Unhappy	1.84
Hateful	1.90

Some middle-valence words:

Neutral	5.50
Converse	5.37
Eight	5.37
Century	5.36
Machinery	4.65
Platoon	4.65

Ratings, or norms, have been gathered for thousands of words in many languages by asking people to rate words for positivity and negativity on a scale of one (sad) to nine (happy). The valence ratings can be relatively straightforward – for words such as 'unhappiness' (1.89) and 'vacation' (8.53, the highest rating of any word – above, even happiness itself at 8.48), for example – but they can also seem abstract – for words such as 'beanbag' (5.88), 'fellow' (6.28), and 'weather' (6.05). Our work relies on valence as a measure of the emotion of individual (rather than phrases of) words. We use words with positive valence as proxies for positive subjective well-being; words with negative valence serve as indicators of negative well-being.

We are not the first to imagine taking the pulse of the public mood by examining the valence of the published words of a time. Using text to infer mood represents a growing scientific endeavour, with widespread implications for predicting economic, political and cultural trends. This method has been used to assess public opinion about political candidates, to predict stock market trends, to understand seasonal mood variation, and to understand the social impact of large-scale events as varied as earthquakes, economic bailouts and the death of celebrities.[31] One study used a simple calculation of word ratings to predict – with an accuracy rate of 70 percent - the mood of some 17 million blogs.[32] The University of Vermont Complex Systems Center's Computational Story Lab has created a 'hedonometer' - a device to gauge happiness through scoring of individual words - based on people's online expressions; it uses Twitter to measure people's happiness in real times via the words in their Tweets.[33]

Sidebar 4. The Hedonometer Explained

In an essay published in 1881, the Irish economist Francis Edgeworth imagined a strange device, a 'psychophysical machine, continually registering the height of pleasure experienced by an individual'. He called this imaginary contraption a 'hedonimeter'.[34]

Mathematician Peter Dodds and computer scientist Chris Danforth at the Advanced Computing Center at the University of Vermont have created a modern take on this notion. Their 'hedonometer' uses people's online expressions, capitalising on data-rich social media to measure how people present themselves to the outside world.[35] The online site is an instrument that measures the happiness of large populations in real time – what the creators call a 'Dow Jones Index of Happiness'. They have used these data to characterise happiness variations in terms of geography, demographics, and socioeconomic factors, among others. For example, the team has created a U.S. map with cities coloured according to their levels of happiness.

Their research analysing the emotion of individual words has examined the happiness in words of the lyrics of popular songs, which show a clear downward trend over a period starting in 1961, while remaining stable within musical genres.

Their research finds that the happiness of blogs increased from 2005 to 2009. Striking patterns emerge for age – and for geography. The findings are contrary to the U-curve of human happiness, which shows that life satisfaction is lowest in middle age. In blogs, the lowest emotions are expressed by teenagers (ages 13 and 14) and the elderly. Emotions rise after age 14, levelling off for ages 45 to 60, and then veer downward in the last years of life, with bloggers in the 75-to-84 age range producing sentences with a level of emotion similar to those of 17-year-old bloggers.[36]

For example, 14-year-old bloggers disproportionately use the words, 'hate,' 'sad,' 'bored,' and 'lonely'. The research reports a geographical arc of happiness, too – with happiness levels lower among bloggers living nearest to or farthest from the equator, and higher for bloggers in temperate areas. For example, individuals near the equator more frequently use the words 'sad', 'bored', and 'lonely', and individuals at higher latitudes (between 52.5 and 69.5° absolute latitude) more frequently write the words 'guilty', 'sick', and 'depressed'.

As the authors write, '...we would like to know how, when, and why individuals feel as they do if we wish...to better construct public policy, build more successful organizations, and, from a scientific perspective, more fully understand economic and social phenomena'.

We set out to measure happiness in centuries before well-being surveys and instantaneous social media were part of the picture. Nonetheless, we were able to employ decidedly 21st century tools, techniques and perspective. We relied on hundreds of billions of individual words, 8 million books, thousands of valence ratings, 200 years of history, and modern survey information on happiness in six countries - France, Germany, Italy, Spain, the United Kingdom and the United States – and in six languages – French, German, Italian, Spanish, British English and American English.[37]

'LIFE, LIBERTY AND THE PURSUIT OF HAPPINESS'

While the Google Books corpora of words in printed sources begin from c. 1500, we chose to begin with the year 1776, the date of the American Declaration of Independence, one of the most famous of all historical documents to specifically reference happiness in its enduring words:

'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness'.[38] Moreover, many historians would cite the American Revolutionary War (1775-83) and the French Revolution (1789) as key events signalling the start of the modern era.

Our research begins at this point, and then continues through 2009.[39] This allows us to explore the public mood as reflected through the lens of authors' published words over the course of two centuries – a time in which daily life undergoes a transformation of every imaginable kind. The time span is long enough to encompass the full panoply of socioeconomic change: revolutions (military, industrial, sexual, and digital); periods of unparalleled economic growth and the deepest economic catastrophe of the 20th Century, the Great Depression; two world wars and civil conflicts (civil wars waged within a country's borders, and wars waged by another country elsewhere, such as the U.S. war in Vietnam); the post-war societies of the victors and the vanquished; periods when populations were decimated by and terrified of the outbreak of contagious disease, and periods when medicine advanced to conquer them; periods characterised by widespread hunger, and, later, by widespread obesity.

To take the pulse of the national mood in this way, we used conventional methods of economic analysis. Of course, while our methods offer a new way to capture the voices from the past, and a new way to think about the relationships between life events and human happiness, we recognise that they are imperfect measures. The evolution of literature, the market for books, and the language itself, along with growing literacy rates, present challenges. Over the past 200 years, the target readership for a typical published book moved from the wealthy elite to the mass public, and one might expect that the content of these books would adapt, too. Patterns in literary style changed considerably in the early part of the 19th century with the advent of greater realism and social commentary within literature. On the one hand, literature portraying reality may have boosted the use of words with lower levels of valence. But, on the other hand, books became more widely available, and more frequently used for entertainment. Our work took steps to cope with these issues in various ways. For instance, we use multiple countries to help control for national variation in these areas of concern. We also check for the robustness of our measure by examining words with the highest and lowest valence levels. The meanings of these words have remained largely unchanged over time. In addition, we closely compare our findings with the happiness survey results from the early 1970s onward. This spectrum of issues is

similar in spirit to the challenges that fellow researchers have faced and have managed to address when comparing economic growth and income levels across many centuries that have led lifestyles to change beyond recognition. And, in fact, these are the same genre of problems faced by any socioeconomic exploration that attempts to look at very long periods of time.
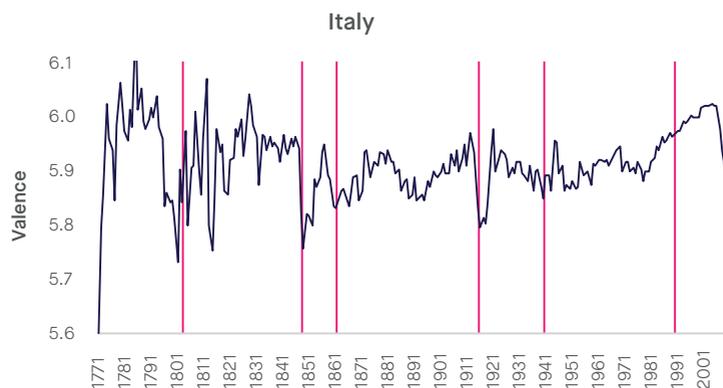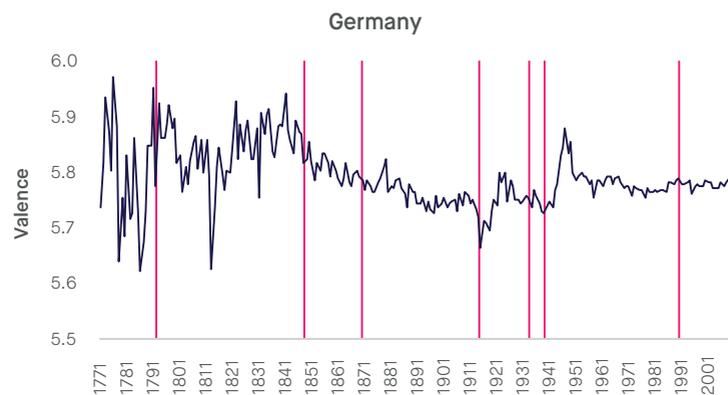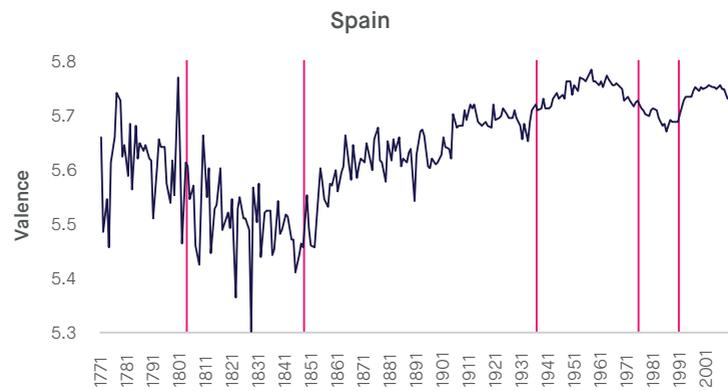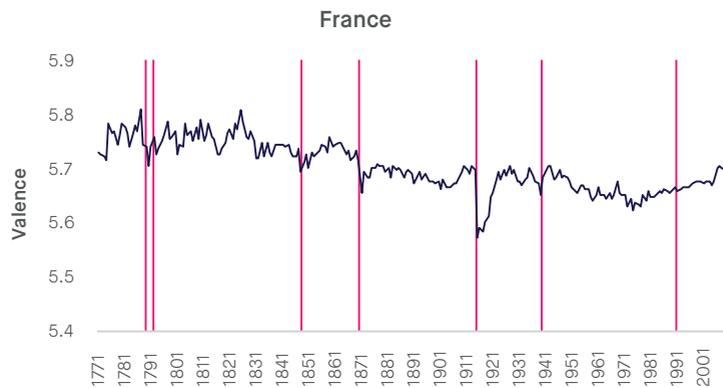
TIMELINES OF HAPPINESS

Thus, we use our methods to allow the writers of the past nearly 250 years to speak to us across time to gain some insight into how events and trends affected human happiness. These methods also give us a new way to visualise the path of human happiness, waxing and waning across the years. We create long-term timelines, creating an index that maps the shifting levels of happiness against a backdrop that marks key historical events.[40]

The British timeline is shown in the fold-out index on the back cover; the timelines for the United States and four continental countries are shown here:

Figure 3-2. Happiness levels, measured by average valences of published words, 1771 to 2009: selected countries.

France

Germany

Italy

Spain

Source: Hills, Proto, and Sgroi (2015).

The horizontal axis displays the dates. The vertical axis shows the levels of happiness, as measured by the average valence ratings of words in published books.

Vertical red lines denote events as follows:

1776: The US Declaration of Independence. 1789: The French Revolution. 1792: Outbreak of the Napoleonic Wars (France, Germany, UK). 1803: Resumption of the Napoleonic Wars (Spain, Italy). 1848: The Year of Revolutions (all European countries). 1861: Outbreak of US Civil War; Italian unification begins. 1870: Franco-Prussian war, followed by German unification. 1914: Outbreak of World War I (Germany, France, UK). 1915: Italy enters World War I. 1917: USA enters World War I. 1929: Wall Street Crash (USA). 1933: Hitler takes power (Germany). 1936: Outbreak of Spanish Civil War. 1939: Outbreak of World War II (Germany, France, UK). 1940: Italy enters World War II. 1941: USA enters World War II. 1953: End of Korean War (USA). 1975: End of Vietnam War (USA). 1990: German reunification; end of Cold War (all countries).

The massive collapse of well-being during the two world wars eclipses anything else except the Great Depression, the most profound economic collapse of the 20th century. The rapidity of these falls in well-being during these periods offers a durable measure of the prevailing sentiments of the times. In nearly all countries, well-being increases markedly in the wake of these terrible events, though different countries experience different highs in well-being in response to certain events.

We highlight, in particular, the timeline for the United Kingdom, displayed in the foldout timeline inside the back cover. The ups and downs charted over the course of the past two centuries suggest how happiness was affected by experience – and sometimes in surprising ways. For example,

the 19th century in the UK is associated with Dickensian conditions ('It was the best of times, it was the worst of times…'[41]), but happiness levels in that century were surprisingly high compared to the 20th century. Happiness fell with the American War of Independence (1775-83), and the loss of the American colonies, the two World Wars, the stock market crash of 1929, and the subsequent Great Depression. In the post-World War II period, happiness reached a notable high point in 1957, the year of Harold Macmillan's speech that most people living in the United Kingdom had 'never had it so good'. After that happiness plummeted. The UK experienced a sustained period of unhappiness through the 1960s, and on into the so-called Winter of Discontent – the winter of 1978-1979, characterised by high inflation, labour strikes protesting caps on wages, and unusually cold weather and blizzards. The trend began to rebound in the late 20th century.

KEY FINDINGS

When we look at six nations' histories over the past two centuries, **we find no connection between economic growth and the state of human happiness in the long run.** To check whether our 'words-based' analysis can be trusted as a reflection of well-being, we compared the results with the results of well-established surveys of well-being, giving us an overlapping time frame that extends back to the early 1970s. For this overlapping time frame, the results from the two strikingly different measures of happiness find that economic growth and happiness do not move in sync. That is, **valence-based methods reach the same conclusion as contemporary surveys** – a finding that reinforces the merit of using published words of authors to take the pulse of the public mood.

Growth of GDP does not play a significant role in a nation's happiness, but economic instability and downturns such as recessions and the economic collapse of the magnitude of the Great Depression do lead to plummeting levels of well-being. Nations have experienced enormous economic growth over the past two centuries, but this growth did not spur growth in happiness. By contrast, economic downturns took a toll on the life-satisfaction of people. These downturns, however, were relatively short-lived.

Wars and civil conflict lead life satisfaction to plummet. At the risk of stating the obvious, the suffering and loss of life caused by war reduces human happiness. The magnitude of the fall in well-being during civil and world wars was sharp, and of such a magnitude that no other event - with the exception of the Great Depression, an economic crisis unrivalled in magnitude - matched its depths.

Increases in life expectancy and decreases in rates of child mortality coincide with increased levels of happiness. We interpret the links as indicators of how much of a role physical health plays in human happiness. We rely heavily on these two measures because data on lifespans and child mortality have been collected for hundreds of years; other data may suggest the roles played by certain medical advances over shorter spans of time. Nevertheless, we believe our measures suggest the overall power that the promise of a long, healthful life in itself contributes to human happiness.

Words matter. Our findings suggest that the valence of the vocabulary in publications mirrors the public mood. This is likely because literature is trying to tap into the market of the times, and trying to resonate with the public appetites and attitudes. Words that correspond positively with life satisfaction correlate positively with valence. As an example, words with the highest valence ratings include lovable (8.26), honest (8.16), and laughter (8.05). The reverse is also true: words that correspond with a dissatisfaction with life have among the lowest valence ratings. Words that with the worst valence scores include torture (1.4), racism (1.48), and abuse (1.53).

Freedom of speech – or the lack thereof – plays an important role. Our 'published words'-based results suggest that World War I wreaked much more misery upon the people of France, Germany and Italy, than World War II. This might be a surprising finding in that while both wars were catastrophic, World War II lasted longer and led to more casualties. We interpret these results in light of the pervasive censorship that characterised the World War II period. That is, the findings seem to reflect the strong control of the press in these countries during World War II.

LOOKING FORWARD

In 2016, the Oxford Dictionaries chose their Word of the Year 'post-truth' – an adjective defined as 'relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief''. As this new entry into the contemporary lexicon suggests, new media are re-defining written communication in the 21st century. New genres - blogs, Facebook entries and Twitter feeds - have generated a society filled with prolific writers of current sentiment whose words reflect the issues of our times – based on real events, or, their own realities. Policy-makers should increasingly expect to see – and find ways to develop and use – measures that are derived from the emotions in published words in traditional and new formats. New, instant 'publications' have the potential to capture the tenor of the times, and to provide information about the many forces that affect well-being of an entire society – and of groups within it.

These new literary platforms – like the publications over the past two centuries – underscore the power of a few words. They have the potential to eclipse traditional forms of publishing by offering more immediate ways to take the public pulse. The technologies that provide platforms for these instantaneous publications, and make our research possible, potentially give words new power to inform – and in so-called real time.

The approaches we have used to analyse the written word in the past can be adapted to analyse writing in these new media too. Analysis will need to address complexities:long-standing issues, such as censorship and manipulation of public opinion that now find new channels – for example, via online 'fake news' and the voices of online 'bots'. Our analysis makes use of the valence of words and work on new media may have to consider how quickly those valences change: for example, hashtags such as #IceBucketChallenge or #BlackLivesMatter can emerge – and fade – very quickly; and political campaigns can generate massive amounts of comment, from supporters and opponents, within minutes.

Fundamentally though, our work provides a new method for gaining insight into well-being and one that is likely to inform policy-making in significant ways. In the final chapter of this report, we will now look more closely at some of the implications for public policy of the work on well-being described in this report.

CHAPTER 4 – IMPLICATIONS FOR PUBLIC POLICY

INTRODUCTION

Our report explores a wide range of issues raised by our understanding of happiness across a society; what role genes play in the variation in happiness across societies; and how happiness has varied over time. On the basis of our work, and informed by the research of others, we can draw out three sets of implications:

1. How to complement economic data with happiness metrics for tracking progress in our societies.
2. How to identify which public policies should be a priority for improving happiness.
3. How to better design policy initiatives.

IMPROVING THE MEASUREMENT OF PROGRESS

Our research suggests that the metrics governments use to evaluate socioeconomic progress should evolve. After a certain point, economic growth does not necessarily lead to improved happiness. Our work, analysing 8 million books published over the past two centuries in five languages, confirms this insight, which has been an important part of well-being studies since the 1970s.

Our findings should not be interpreted to mean that the condition of a national economy is unimportant or irrelevant. Clearly, a vibrant economy can be leveraged to enhance other elements of social life that contribute to well-being. Unemployment, for instance, is a prime cause of unhappiness that lingers even after a return to the workforce.[1] Rather, our work underscores that the pursuit of economic growth should not come at the expense of other important aims that can enhance well-being. The fruits of economic growth ought to be directed in ways that are targeted toward improving the life satisfaction of people, rather than toward the sole aim of income growth.

The work on conventional economics and the work on the economics of happiness do not always lead to the same policy conclusions. Conventional economics argues that greater GDP will make society happier. But if the criteria are human feelings and genuinely greater well-being, the evidence is mixed. What many economists who work on the subject of happiness believe we would actually need to boost well-being, for example, would be lower unemployment rates and better health. When thought through, these are neither the same as nor guaranteed by higher national income. To improve well-being, we also need to pursue other things such as cleaner air and shorter commutes and other matters that conventional economics finds hard to value -- in both senses of the term.

For example, what happens when Person A grows richer? If everyone else's income stays fixed, Person A may become happier. But what if Person A grows richer, and so does everyone else? Happiness research has demonstrated that, in this case, Person A is unlikely to feel any happier. We believe this is because people care predominantly about their *relative* standing. Thus, when all citizens get richer, it is possible - despite conventional economic wisdom suggesting otherwise - for people to feel no better about their lives. The data support this disruptive idea.

Fortunately, the UK and other governments are already collecting data that can be used to create measures of happiness. Since 2011, the UK Office of National Statistics has conducted surveys about citizens' levels of happiness, life satisfaction, anxiety and worthwhileness of life that can serve as the foundation for overall well-being measures. The governments of 21 industrialised nations are collecting similar data.

The next step is to refine these data, crucially by identifying what weight should be given to the different elements of happiness. Large samples of people who are representative of the broader population as a whole could and should be asked for input on how much relative weight each of the elements of happiness ought to be given.

This is perhaps more important now than ever. Life was certainly not better on an objective analysis in, for example, the 19th century compared to now, but expectations of people living in that earlier time were almost

certainly lower, and, thus, they were more likely to be satisfied. Our findings from the analysis of published work going back further than happiness surveys allow suggest that this complex stew of expectations and reality is more important to life satisfaction than might previously have been thought. In that context, the impact of the Information Age on happiness is still unclear. We know more than ever about each other and about the character of our societies – the good and the bad. Measuring progress in improving happiness will require us to improve our understanding of what people value the most.

Our research also suggests one other very important element of context when we measure progress in happiness: genetics. When we began our research, we considered genetics to be an implausible avenue to explain the international differences in well-being. Contrary to these initial expectations, our work now tells us otherwise. Three entirely different methods – measures of genetic distance, the prevalence of a specific gene variation linked with mental well-being, and a historical evaluation – cautiously suggest that genes do play a role and one that, as yet, we cannot explain away by economic and socioeconomic forces.

As a result, some nations – including Denmark, often held up as one of the happiest nations in the world - may, in fact, have a genetic advantage in happiness; and others by implication may have a disadvantage. This does not mean nothing can be done to improve happiness in some societies. Policy-makers do have tools at their disposal to improve citizens' well-being regardless of the population's genetic predispositions. Nevertheless we should be careful of ranking nations by happiness scores or measuring progress in happiness in any one society by comparison to others. The more robust and revealing measure of progress may be within any one society over time.

IDENTIFYING WHICH PUBLIC POLICIES CAN CONTRIBUTE TO HAPPINESS IN SOCIETY

As governments seek to keep up or improve satisfaction with public services, and perhaps to reduce the money spent on them, happiness measures have the potential to help direct limited resources toward the

most effective public-policy interventions. We are acutely aware that real-world politics is moulded partly by ideology, power and constituencies – issues that are unaddressed in our analysis. However, policy-making that takes seriously the dictum of trying to increase the happiness of members of society will be likely to shift resources in new directions.

Despite the profound limits in understanding how and how much genes influence happiness, our research suggests that policies to help people cope with the vicissitudes of life are likely to improve well-being, regardless of one's genes, and especially for those whose DNA renders them particularly vulnerable to depression.

Avenues that make mental health services affordable, widely available, easily accessible, and less stigmatised would help people to cope with stressful events in life. Mental health services offer particular potential to boost the resilience of people whose genetic makeups make them more vulnerable to depression and other mental health problems in the face of stress. The Danes, for example, make extensive use of mental health services with roughly one-third of the population receiving such services sometime in his or her lifetime; by contrast, evidence in the UK suggests a paucity of services themselves and information about services, and that people who use mental health services often experience discrimination, even from family and friends.[234]

Our research has more conventional implications for prioritising policy action, too. We find, unsurprisingly, that maintaining economic stability is important to happiness. Our analysis going back through time, further than modern happiness surveys allow, using published books shows that the Great Depression wielded a more profound and negative impact on well-being than any other economic event over the past two centuries.

By comparison, recessions had negative, but short-lived effects that paled in magnitude to other issues we examined. Our work therefore underscores the importance of monetary and fiscal policies that can foster economic stability as a source of well-being. Policies that help to secure stable employment levels and avoid runaway inflation are important, not just for technical economic reasons but for happiness as well.

Equally the importance of increased longevity and reduced child mortality in the happiness picture over a long period of time suggests that looking forward to a long, healthy life for ourselves and for our offspring is of unrivalled importance for happiness. Our analysis shows that, taken together, increasing longevity and reducing child mortality were the trends most tightly linked with rising happiness levels over the past nearly 250 years. They serve a proxy for, and a reminder of, the important role that health and physical well-being play in our overall well-being.

Therefore, policies that seek to boost life satisfaction should funnel resources into the paths that foster better health. Over the timeline of the past two centuries, improved sanitation, vaccinations and antibiotics largely tackled the communicable diseases and infections that led to death and misery for so many generations. Thus, in our times, the main health issues have evolved into non-communicable diseases, such as heart disease, cancer, and diabetes – many of these illnesses related to the global obesity epidemic. Other illnesses whose prevalence is rising, such as Alzheimer's disease, are linked with longevity, and are a growing concern as more people live longer. Therefore investments in research, and using research findings to improve public health in these emerging areas of concern, should be a priority for policy action.

IMPROVING THE DESIGN OF POLICY INITIATIVES

Finally, our research has implications for the design of policy action. The first of these flows from the analysis of the role of genes in determining happiness. Happiness – at individual and national levels -- depends on more than genetic codes. Genes that affect well-being do not operate in isolation, and biology should not be considered one's destiny. The old nature vs. nurture debate has moved on. The intriguing questions on the issue now focus on the ways in which one's genetic make-up (nature) interact with the environment (nurture). Policy levers can improve well-being, and, our research suggests that policies may be particularly important for those whose genes contribute to their vulnerability in handling life's stresses. This is an implication for the targeting of policy action.

Research shows that happiness is contagious, and, thus, policies that target greater happiness among some individuals or groups have the potential to circulate more widely in society through friendship and family networks. Genetic similarities among certain populations explain some of the differences among the happiness levels of citizens of different nations, but multiplier effects of social networks likely play a role as well. In other words, happiness circulates. As a result, measures that foster and cultivate strong, positive social networks provide channels that spread well-being. The implication of this for the design of policy initiatives – focusing on the social dimension by which gains in happiness might be expected to circulate as well as basic increases in individual happiness – feels particularly relevant when social isolation has become a growing mental and physical health concern, with risks comparable to those associated with smoking and exceeding those from inactivity.[5][6][7][8]

A greater focus on happiness in policy-making could also shape policy-making procedures right from their conception. In the same way as economic cost-benefit analysis can be used to prioritise policy intervention, it is possible to imagine the targeting of happiness gains when choices between competing priorities are being made.

If this approach were taken to its logical conclusion, the next public spending round in a nation like the UK would consist of the different government departments presenting their sets of policies with estimated costs and happiness benefits, and then choices being made with the aim of increasing happiness. This would be a major change in the design, or technology, of how policy is designed and made, one that we believe flows from the greater focus on happiness that our research suggests is now not only possible but increasingly robust and better understood.

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34. Edgeworth (1881)

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38. National Archives (2001)

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ABOUT US

THE AUTHORS

The foreword to this policy report is provided by Richard Easterlin. He is Professor of Economics at the University of Southern California. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, Distinguished Fellow of the American Economic Association, Fellow of the Econometric Society, a former Guggenheim Fellow, and past president of the Population Association of America, Economic History Association, and Western Economic Association International.

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Gus O'Donnell was Cabinet Secretary and Head of the British Civil Service from 2005-2011 and in 2010, he oversaw the introduction of the first coalition government since the Second World War. He was Permanent Secretary of the Treasury from 2002-2005 and served on the IMF and World Bank Boards. Gus is currently Chairman of Frontier Economics, Strategic Advisor to TD Bank, Executive Director and Strategic Advisor to Brookfield Asset Management, Chair of PwC's Public Interest Body (PIB), President of the Council of the Institute for Fiscal Studies (IFS) and Chair of the Board of Trustees for Pro Bono Economics. He is also a Visiting Professor at LSE and UCL, a member of the Economist Trust, and Chair of the Behavioural Insights Team Advisory Board at the Cabinet Office. He studied Economics at Warwick University and Nuffield College, Oxford, then lectured at Glasgow University. Knighted in 2005, Gus was appointed to the House of Lords in 2012, sitting as a crossbencher. Gus is an Honorary Fellow of the British Academy and Fellow of the Academy of Social Sciences.

Andrew Oswald is Professor of Economics and Behavioural Science at the University of Warwick. His research has spanned various fields, across the social sciences, including research into the determinants of people's wages and the causes of high unemployment. He may be best-known, however, for work he has been doing since the start of the 1990s into the statistical determinants of human well-being, job satisfaction, and mental health. Although 25 years ago that kind of research was rare, there is now a huge literature on 'the economics of happiness'. He serves on the board of editors of the journal Science. He was previously at Oxford and the London School of Economics, with spells as Lecturer, Princeton University (1983-4); De Walt Ankeny Professor of Economics, Dartmouth College (1989-91); Jacob Wertheim Fellow, Harvard University (2005); Visiting Fellow, Cornell University (2008); Research Director, IZA Bonn (2011-12). He is an ISI Highly-Cited Researcher.

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THE EDITOR

Karen Brandon is an independent editor, writer and journalist. She hones and polishes academic and policy-oriented publications for economic researchers around the world. At the University of Warwick, she explored ways for economic expertise to transcend academia - via traditional publications and new media. Prior to moving to the United Kingdom, she was a journalist for the Chicago Tribune. Her work covering politics, public policy and social trends took her throughout the United States, Mexico and India. While at the Tribune, she was a member of reporter teams that produced two series that were named finalists for the Pulitzer Prize, and she received the Overseas Press Club award for best foreign reporting.

CAGE

Established in January 2010, the Centre for Competitive Advantage in the Global Economy (CAGE) is a research centre in the Department of Economics at the University of Warwick. Funded by the Economic and Social Research Council (ESRC), CAGE is carrying out a 10 year programme of innovative research.

Research at CAGE examines how and why different countries achieve economic success. CAGE defines success in terms of personal well-being as well as productivity and competitiveness. We consider the reasons for economic outcomes in developed economies like the UK and also in the emerging economies of Africa and Asia. We aim to develop a better understanding of how to promote institutions and policies which are conducive to successful economic performance and we endeavour to draw lessons for policy makers from economic history as well as the contemporary world.

CAGE research uses economic analysis to address real-world policy issues. Our economic analysis considers the experience of countries at many different stages of economic development; it draws on insights from many disciplines, especially history, as well as economic theory. In the coming years, CAGE's research will be organised under four themes:

- What explains comparative long-run growth performance?

- How do culture and institutions help to explain development and divergence in a globalizing world?

- How we improve the measurement of well-being and what are the implications for policy?

- What are the implications of globalization and global crises for policy making and for economic and political outcomes in western democracies?

THE SOCIAL MARKET FOUNDATION

The Social Market Foundation is a leading cross-party think tank, developing innovative ideas across a range of economic and social policy. The SMF's current research themes are productivity and growth; cost of living; and public service reform. We champion policy ideas which marry markets with social justice and take a pro-market rather than free-market approach. Our work is characterised by the belief that governments have an important role to play in correcting market failures and that a sustainable market economy rests on social and political foundations that are widely regarded as fair.

CAGE POLICY REPORTS

This is the third CAGE Policy Report. The first CAGE Policy Report was published in 2012 as *Reversals of Fortune? A Long-term Perspective on Global Economic Prospects* by Sascha O. Becker, Stephen Broadberry, Nicholas Crafts, Sayantan Ghosal, Sharun W. Mukand, and Vera E. Troeger. The second CAGE Policy Report was published in 2014 as *Unlocking Development* by Stephen Broadberry, Leigh Gardner, Rocco Macchiavello, Anandi Mani, and Christopher Woodruff, and edited by Mark Harrison. Both reports are available at http://warwick.ac.uk/cage/publications/.

Figure 3-1. Happiness levels of citizens of the United Kingdom from 1771 to 2009
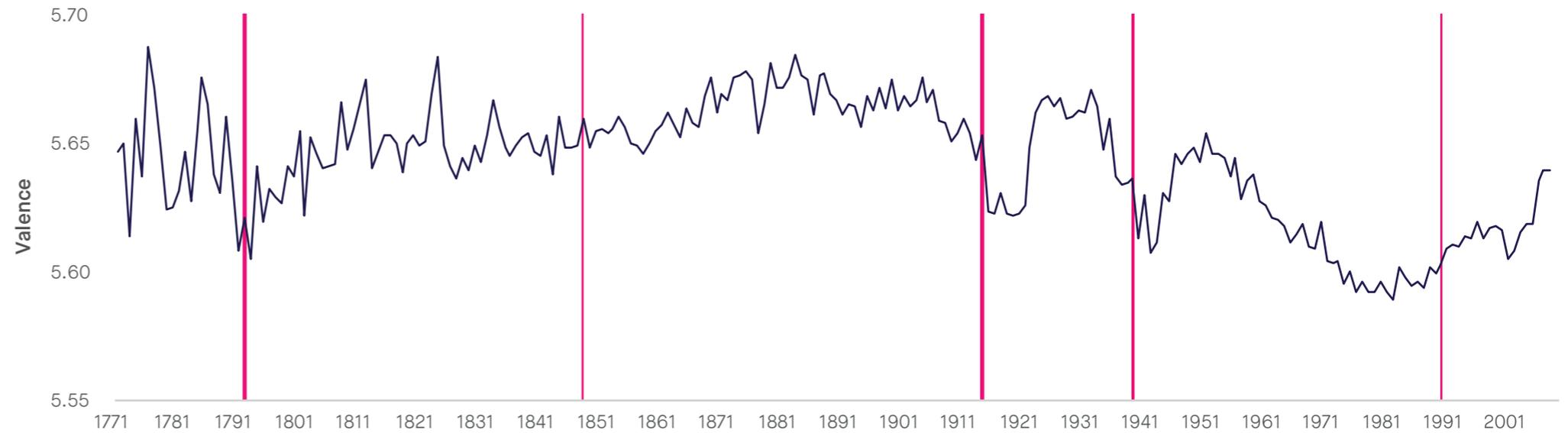
Hills, Proto, and Sgroi (2014).

This timeline suggests how happiness levels have changed in the United Kingdom over the course of the past nearly 250 years. The horizontal axis displays the dates. The vertical axis shows the levels of happiness, as measured by the average valence ratings of words in published books. We use the valence of words to serve as a proxy for societal happiness, as explained in Chapter 3. Valence, a concept psychologists use to capture positive and negative feelings, is a way to signify the emotion contained in a word. Valence ratings are on a scale of one to nine, with higher ratings for words associated with more positive emotions, and lower ratings for words associated with more negative emotions. (For example, 'happiness' has a valence of 8.53; 'unhappy' has a valence of 1.90.) The vertical red lines denote the following events:

The timeline provides a new way to visualise how happiness waxed and waned against the backdrop of world and national events. Some surprises surface. For example, the 19th century in the UK is associated with Dickensian conditions, but happiness levels in that century were surprisingly high compared to the 20th century. Happiness fell with the American War of Independence (1775-83) and the loss of the American colonies; the two World Wars; the stock market crash of 1929, and the subsequent Great Depression. In the post-World War II period, happiness reached a notable high point in 1957, the year of Prime Minister Harold Macmillan's speech that defined the era: '... let us be frank about it - most of our people have never had it so good. Go around the country, go to the industrial towns, go to the farms and you will see a state of prosperity such as we have never had in my lifetime - nor indeed in the history of this country'. After that, happiness plummeted. The UK experienced a sustained period of unhappiness through the 1960s, and on into the so-called Winter of Discontent – the winter of 1978-1979, characterised by high inflation, labour strikes protesting caps on wages, and unusually cold weather with blizzards. The trend began to rebound in the late 20th century.

Our findings show: Growth of GDP does not play a significant role in a nation's happiness. Economic instability and downturns, such as recessions and the economic collapse, the Great Depression, led well-being to fall. Wars and civil conflict led life satisfaction to plummet. The Great Depression, the most profound economic catastrophe of the 20th century, was the lone economic event that sparked a fall in levels of well-being of the same magnitude as war. Increases in life expectancy and decreases in rates of child mortality – which we interpret as proxies of physical health - coincided with increased levels of happiness.

In sum, nations experienced enormous economic growth over the past two centuries, but this growth did not spur growth in happiness. Research in our report examines why this may be the case, and suggests that public policy ought to evolve to incorporate greater well-being as a goal.

We examine the ebb and flow of happiness in the UK and in five other nations over the same time frame. The timelines for the other nations – France, Germany, Italy, Spain and the United States - are shown in Figure 3.