

## The 2008 Legatum Prosperity Index Report

Methodology, Data and Findings

*Legatum Institute*

## Preface

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Dear Reader,

Welcome to the 2008 Legatum Prosperity Index Report. This second edition builds on last year's inaugural publication, with increased coverage and refined analysis.

The Prosperity Index is an inquiry into the nature of prosperity and how it is created. This year, scholars and researchers affiliated with the Legatum Institute have significantly expanded the coverage of the Index, investigating prosperity drivers and outcomes in more than 100 countries worldwide.

We define prosperity holistically to include both material wealth and quality of life. Rather than replicating other measurements that rank countries by their actual levels of material wealth or life satisfaction, the Index produces a ranking based on the conditions that foster prosperity -- that is, the factors that promote economic competitiveness and improved liveability in a given country. We refer to these factors as drivers of prosperity and to those that impede prosperity, as restrainers. The Index endeavours to rank countries according to the strength of these drivers and restrainers, not according to simple measures of income and life satisfaction. In this way we hope to contribute to a richer analysis of what promotes prosperity globally.

This Report introduces the methodology, data, and findings of the 2008 Prosperity Index, presents country profiles for each of the 104 countries covered, and includes three original research and policy papers by leading scholars on various dimensions of prosperity.

We have also produced a shorter pamphlet, *Summary and Commentary*, to complement this Report. This Report and the *Summary and Commentary*, as well as interactive tools allowing users to explore the data and conduct their own research, are available online at [www.prosperity.com](http://www.prosperity.com).

We very much hope that you find this 2008 Prosperity Index Report of interest and welcome any comments and feedback that you may have.

Yours sincerely,

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Senior Vice President  
**Legatum Institute**

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Managing Director  
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## Mission Statement for the Prosperity Index

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The purpose of the Prosperity Index is to encourage policymakers, scholars, the media, and the interested public to take a holistic view of prosperity and understand how it is created. Holistic prosperity extends beyond just material wealth, and includes factors such as social capital, health, equality of opportunity, the environment, effective governance, human rights and liberties, and overall quality of life.

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The Legatum Institute wishes to thank the members of the Academic Advisory Panel for helpful advice, critiques and suggestions. The Legatum Institute assumes full responsibility for the content of the Prosperity Index. The participation in the Academic Advisory Panel does not imply endorsement of every aspect of the 2008 Prosperity Index.

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Finally, the Legatum Institute recognises Oxford Analytica ([www.oxan.com](http://www.oxan.com)), an independent consultancy that has for 30 years provided authoritative analysis of geopolitical events, for its assistance in compiling the Prosperity Index.

*“[The] Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage...It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl...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 everything, in short, except that which makes life worthwhile.**”*

*Senator Robert F. Kennedy<sup>1</sup>*

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<sup>1</sup> Senator Robert F. Kennedy, speech at the University of Kansas, Lawrence, Kansas, March 18, 1968

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## Executive Summary

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The Legatum Prosperity Index endeavours to suggest answers to, and to encourage public discussion of, two important questions: What constitutes national prosperity? And, what can help countries become more prosperous?

The Prosperity Index is unique in at least three ways:

*First, it takes a holistic view of prosperity, encompassing both material wealth and life satisfaction.* In other words, the Index reflects the conviction that ‘prosperity is about more than money’. This is not merely a theoretical assumption or an uninformed normative preference, but is rather based on substantial empirical research into the sources of both material and subjective wellbeing. In practice, this means the Index is based on two equally weighted subindices: economic competitiveness (factors that explain differences in countries’ relative levels of material wealth) and comparative liveability (factors that explain differences in countries’ relative levels of life satisfaction).

*Second, it assesses the drivers and causes of prosperity, rather than measuring outcomes.* This means that the Index assesses nations based on whether or not they are cultivating the practices and institutions that create prosperity, not according to how prosperous they currently are. For this reason, it is possible for country A to have a higher per capita Gross Domestic Product (GDP) than country B, but to be ranked lower in the Index because, for instance, it is highly dependent on natural resource exports and does not foster high levels of entrepreneurship. In such an instance, country A’s prosperity may be less sustainable in the long term regardless of its current per capita GDP.

*Third, it includes factors that relate to government policy and to individual citizens.* A nation’s prosperity is a function of more than its government’s policies. The Index uses indicators of economic progress and quality of life that include the domain of government activity but also encompass what citizens themselves are doing, or not doing, to increase prosperity. The Index is a tool not only for policymakers but also for leaders and concerned citizens in all of society’s sectors.

The Index is presented in a set of publications. The *Summary and Commentary* introduces the Index and gives an overview of our interpretation of the findings. This Report describes the methodology and indicators in detail, profiles each of the countries covered in the Index, and presents research and policy papers on key topics of prosperity. A Technical Appendix describes the research methodology in detail. All these publications, together with an extensive set of interactive data analysis tools, are available at [www.prosperity.com](http://www.prosperity.com).

## Background: The Prosperity Index in Context

Measurement of Gross Domestic Product (GDP) has become insufficient as an indicator of national prosperity. Critiques began to emerge in the 1950s and 1960s, noting that GDP, which had by that time become the *de facto* measure of national wellbeing, does not account for costs and benefits to human welfare such as pollution or public health. This set off a public debate about the best way to characterise national prosperity, which continues to the present day.

- ♦ Development economists created Human Development Indicators as alternatives to GDP. However, these indicators have not succeeded in surpassing GDP in the policy discourse. They mainly represent international consensus on a set of specific policy objectives and do not constitute an alternative comprehensive measure of national wellbeing.
- ♦ More recently, empirical research from the field of behavioural economics has led to renewed criticism of the GDP-centric notion of prosperity. This research has highlighted the need for an alternative, empirically founded prosperity measure to complement commonly accepted economic measures.

The rapidly growing body of research on ‘subjective wellbeing’, known more popularly as the ‘science of happiness’, offers the potential for such a measure. Subjective wellbeing is an empirical approach that attempts to understand life satisfaction from the vantage point of how people assess their own lives. Based on the lived experience of individuals rather than

abstract theories of 'happiness', subjective wellbeing measurements hold considerable promise for assessing holistic prosperity.

- ♦ Although the science of subjective wellbeing has its critics, research has produced a significant body of evidence suggesting that these survey data provide a reliable and consistent measure of wellbeing. The evidence includes demonstrations that individuals' assessments of their wellbeing are not arbitrary and are valid across different cultural contexts.
- ♦ The Legatum Prosperity Index makes use of research in this area to enable empirical analysis of how policy and personal choices can increase the liveability in a country.

The Legatum Prosperity Index is a response to a growing interest in wellbeing and measures of prosperity that complement purely economic metrics. Until now, however, there has been little understanding of how these new indicators can be used to assess prosperity in a variety of countries. As a result, the Index seeks to establish an approach that combines these new indicators of subjective wellbeing with economic measures to determine which countries are doing the most to foster holistic prosperity.

- ♦ The Index is not designed to identify the happiest and wealthiest nations. Instead, the Index ranks nations by how well they are doing the kinds of things necessary to raise GDP (i.e., promoting economic competitiveness) and to raise average subjective wellbeing or life satisfaction (i.e., promoting comparative liveability). It is an Index of the drivers of prosperity rather than an index of prosperity outcomes.
- ♦ This does not mean, however, that the Index is only loosely related to actual prosperity outcomes. In fact, it correlates very strongly with outcomes. A country's competitiveness and liveability scores on the Prosperity Index explain 75% and 76% of the variation in average per capita income and average subjective wellbeing, respectively.

## Index Methodology

The two pillars of prosperity, *Economic Competitiveness* and *Comparative Liveability* are assessed separately and weighted equally for the overall Index ranking. This allows the reader to compare the evaluation of a particular country from the traditional point of view focusing on economic growth as well as from the human development-centred perspective that looks more generally at wellbeing and quality of life.

- ♦ The indicators that comprise the Index were identified and weighted based on statistical analysis, using 40 years of historical data on economic growth in more than 50 countries, and life satisfaction survey data for more than 100 countries.
- ♦ The Index combines 22 key indicators and 44 subindicators in order to rank more than 100 countries, based on the degree to which the actions of their people and governments drive or restrain the creation of holistic national prosperity.
- ♦ The Index uses a dynamic weighting scheme. This means, for instance, that the importance of capital, trade openness or entrepreneurship will change as countries reach higher levels of national wealth.
- ♦ The Index then makes an initial assessment of the importance of the different factors relative to each other. In other words, the Index attempts to show where policymakers and citizens can make the biggest difference in enhancing national prosperity.
- ♦ In technical terms, the first step in determining the weights of factors in the Index is to group countries into sub-samples of similar GDP levels and derive factor weights via regression analysis. Our method of 'locally weighted scatterplot smoothing' (LOWESS) does not require specifying a global function across all income levels. Instead, at each level of GDP per capita, a least squares regression of the indicator on the outcome variable is run for a band of observations around the point, with more weight given to observations closer to the point ('locally weighted'), resulting in a LOWESS curve.

## Key Conclusions Regarding the Subindices

There are two different theoretical frameworks dominating the derivation of economic growth equations that are used for statistical research: the neoclassical growth model and the endogenous growth model. The factors included in the Economic Competitiveness Index are drawn from the empirical academic literature on these models.

- ♦ For poorer countries (those with average incomes of less than \$10,000 per capita), where increasing material wealth is a particular priority, the most important components of economic competitiveness are:
  - ♦ Government Effectiveness
  - ♦ Levels of Education
  - ♦ Growth in Invested Capital
  - ♦ Low Costs of Starting a Business
  - ♦ Commercialisation of Innovation
  - ♦ Low Dependence on Foreign Aid
  - ♦ Low Dependence on Commodity Exports
  - ♦ Economic Openness
- ♦ For richer countries (those with incomes greater than \$20,000 per capita) that wish to experience continued economic growth, the most important components of competitiveness include:
  - ♦ Invested Capital
  - ♦ Levels of Education
  - ♦ Entrepreneurship
  - ♦ Commercialisation of Innovation

There is a small but growing literature on the determinants of the differences in wellbeing among nations. We created our own cross-country historical data set to test and weight the factors suggested by this literature and our own research, as determinants of life satisfaction differentials. While the Comparative Liveability Index contains many factors driven by individual choice, the weightings of the Index factors reflect a comparative national perspective. That is to say, the Index weights are based on the variability of indicators between nations, not between individuals.

- ♦ In richer countries, where moving beyond material wealth to broader wellbeing is an important goal, the most important components of comparative liveability include:
  - ♦ Continued High Levels of Income
  - ♦ Good Health
  - ♦ Political Rights and Civil Liberties
  - ♦ Freedom of Choice
  - ♦ Charitable Giving
  - ♦ Family Life
  - ♦ Equality of Opportunity
  - ♦ Pleasant Natural Environment
  - ♦ Community Life
  - ♦ Religious Freedom
- ♦ Many poor countries have surprisingly high levels of wellbeing, because traditional social strengths can compensate, at least somewhat, for low average standards of living. In poor countries, the most important components of comparative liveability include:

- ♦ Family Life
- ♦ A Warm Climate
- ♦ Religious Faith

## Special Topics

This year, the Legatum Prosperity Index Report includes significant new research on three topics pertaining to prosperity: entrepreneurship, charitable giving and freedom of choice.

- ♦ “Entrepreneurship and Economic Growth”, by David Audretsch, offers new insights on the link between entrepreneurship and economic growth. Audretsch explains why policymakers lost interest in entrepreneurship during the post-war period and argues that entrepreneurship is now central to economic progress. “Entrepreneurship provides an important mechanism that actually transforms investments in knowledge, ideas and creativity, into innovative activity”, he writes.
- ♦ “Happiness and Charity”, by Arthur Brooks, presents an engaging survey of new research that links charitable giving and life satisfaction. Brooks contends that “the evidence is clear that gifts of money -- as well as gifts of time -- to charitable organisations, houses of worship, and other worthy causes, bring authentic happiness to givers”.
- ♦ “The Role of Freedom and Control in Explaining Happiness”, by Paolo Verme, analyses the World Values Survey data in detail, finding a robust link between freedom of choice and wellbeing in more than 80 countries worldwide. Verme claims, “The more control we think we have over our own choices, the more we appreciate and exploit freedom of choice. In one sentence, freedom is nothing without control”. He concludes his paper with policy suggestions stemming from this finding.

## Country Profiles

This Report concludes with detailed country profiles for each of the 104 countries in the 2008 Legatum Prosperity Index.

## Country Rankings

Full Prosperity Index

Economic Competitiveness Subindex

Comparative Liveability Subindex

# 1. Introduction: the Prosperity Index in Context

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The use of economic indicators to assess national prosperity and to set policy targets is a familiar exercise. Governments highlight their achievements using indicators such as unemployment and inflation, and are called to account when their country's economy stagnates or moves into recession.

Most readers will intuitively understand the Economic Competitiveness section of the Prosperity Index, which is based on such indicators. Our Economic Competitiveness Index offers an alternative view of competitiveness, but one with core components -- such as education and entrepreneurship -- that will be well known to those with an interest in economic policy.

The Comparative Liveability section of the Index may be less familiar. Indeed, some readers may wonder if anything meaningful can be said about something as intangible as 'national happiness' or quality of life for an entire country.

This introduction will argue that, in both theory and practice, the era of non-economic measures of national wellbeing as critical policy targets has arrived. Wellbeing indicators -- indicators of a country's liveability -- will soon become as important as indicators of economic performance to growing numbers of policymakers and will likely play a more formal role in the future as countries set national priorities.

This section first highlights the theoretical and practical limits of GDP. It then goes on to explain why survey-based indicators of life satisfaction or happiness offer a valid alternative paradigm for investigating and assessing the wellbeing of nations, and how the Prosperity Index fits into this paradigm.

## 1.1 The Insufficiency of GDP as an Indicator of National Prosperity

### IS GDP TOO NARROW?

Growth in economic output has often been used to measure the success or failure of nations. For instance, policymakers often map the world by describing low-income countries as 'developing', and countries with high incomes as 'developed' (or, even more starkly, 'first world' and 'third world'). Economic output serves not only as a measure, but also as the paradigm through which economic and social performances are commonly evaluated. In short, GDP is a generally accepted proxy for how prosperous a given country is.

As a result, policymakers are sometimes faulted for applying a 'GDP-centric' view of the world to decisions they make about development. Critics have pointed out that GDP provides too narrow a lens for assessing human welfare (the quote from Senator Robert F. Kennedy at the beginning of this Report captures this well). The principal objection is that focussing on GDP places too much emphasis on economic growth, turning it into an end in itself rather than a means to prosperity.

This critique of GDP first surfaced as a review of priorities in affluent societies during the 1950s and 1960s, and eventually prompted new ideas about how best to understand the welfare of societies. The critics recognised that while an increase in GDP per capita reflects an increase in purchasing power, it does not account for quality of the environment, crime rates, civil liberties and other costs or benefits to human welfare. In other words, the GDP-centric view implies that accumulating wealth is always and unambiguously positive. Evaluating policies solely with regard to their impact on GDP growth therefore fails to capture true policy trade-offs. This criticism has resulted in an exploration of more appropriate measures of national prosperity.<sup>2</sup>

### ATTEMPTS TO CREATE ALTERNATIVE INDICATORS

The primacy of GDP as a paradigm for evaluating progress has been challenged -- perhaps most successfully -- in the context of development economics. Scholars in this field have pioneered alternative indicators such as the Human Development Index and the Millennium

Development Goals. These indicators conceptualise human development more broadly by including assessments of the fulfilment of certain basic human needs.

The Human Development Index has won perhaps the most support. This Index combines several policy targets, including GDP per capita, life expectancy and educational enrolment in a weighted Index (most recently topped by Iceland, followed by Norway, Australia, Canada and Ireland).

However, such alternative indices have not superseded GDP in practice or in the policy discourse. One reason might be that the Human Development Index does not enable the assessment of policy trade-offs common to decision-making in the realm of public policy. Like other social indicators of its kind, the Human Development Index mainly represents international consent on a set of specific policy objectives but -- unlike GDP -- does not provide a comprehensive measurement concept.

In addition, the Human Development Index is not well suited to monitoring social welfare in high-income countries, where the basic needs on which the Index focuses are lower-priority issues (such as the significance of enrolment in tertiary education versus primary school in Europe).

Hence, except in limited contexts, GDP has prevailed as a guide to policymaking, and has remained the most widely-used proxy for general social and economic welfare.

#### THEORETICAL CRITICISMS

In a theoretical context, a higher GDP per capita indicates that individuals have greater purchasing power to consume goods and services. Rising GDP should increase people's 'utility' (their satisfaction) by allowing for more consumption. Hence rising national incomes should indicate rising national wellbeing.

Critics such as Nobel Laureate Economist Amartya Sen have used a philosophical perspective to target the shortcomings of the concept of utility maximisation. Their efforts have concentrated on criticising the axioms of how individuals choose according to the *homo economicus* model -- the rational-choice model of the 'economic man'.<sup>3</sup>

These critics of *homo economicus* do not necessarily challenge the idea that individuals maximise their utility (i.e., pursue their own welfare). Rather, the theoretical debate has centred around how to redefine welfare so that it reflects individual wellbeing.

However, alternative schemes for quantifying welfare are difficult to produce in practice. Any quantification of human welfare seems likely to fall into the trap of imposing a concept of a prosperous life -- just as, for instance, the GDP-centric notion of prosperity, in effect, assumes that individuals prosper through acquisition and consumption.

More recently, not just the definition of utility, but also the concept of *maximising* utility has come under fire. Building on evidence from psychology, researchers have identified idiosyncrasies of human decision-making that stand in contrast to the overly rational model utilised by neoclassical economic theory.

Pioneers in this field, such as Nobel Laureate Daniel Kahneman and Amos Tversky, mostly using controlled experiments with human subjects in laboratory settings, have identified decision-making idiosyncrasies that might be construed as biases, such as preferences for altruism and for fairness.<sup>4</sup>

Other biases appear to be 'hard-wired' into who we are, such as the tendency to prevent loss rather than pursue gain, perhaps because of the greater intensity of feeling involved in losing what is valuable, or perhaps because humans place a greater value on personal possessions than their worth in the marketplace.

This implies that people do not necessarily wish to maximise utility when it is defined in financial terms. Furthermore, the utility we might expect people to derive from consuming particular goods turns out to be different for different people. Income, therefore, has serious shortcomings as a sole indicator of welfare and prosperity.

## 1.2 Measures of National Prosperity Based on Subjective Wellbeing

### THE SCIENCE OF SUBJECTIVE WELLBEING

In this context, a promising alternative approach -- and the approach on which the Comparative Liveability section of the Prosperity Index is based -- is to analyse national prosperity by complementing measures of economic progress with survey-based measures of subjective wellbeing.

The rapidly growing academic analysis of 'subjective wellbeing' is known more popularly as the 'science of happiness'. Subjective wellbeing is an empirical approach that attempts to understand life satisfaction in a manner that is free of theoretical assumptions about what constitutes a prosperous life.

As such, it provides a promising complement to GDP or income as a measure of national and individual prosperity. Together with measures of material wealth, subjective wellbeing metrics provide an alternative assessment of how people perceive progress in their overall condition.

Research on subjective wellbeing begins by assuming that the most straightforward approach to obtaining indicators of wellbeing is simply to ask people a variety of questions about their lives. Survey questions focus on 'happiness' and 'life satisfaction' as well as pleasant and unpleasant moods such as anger and contentment. There are binary questions that ask individuals whether they are satisfied or dissatisfied, and questions that ask respondents to rank some aspect of personal wellbeing on a scale from zero (or one) to ten.<sup>5</sup>

Psychologists describe subjective wellbeing as comprised of 'cognitive' and 'affective' components. The affective component relates to an individual's immediate emotional response to life events, while the cognitive component captures intellectual assessments of life as a whole. The relative weight of these components can differ depending on the given question and on the particular person asked. Responses to questions about happiness or moods in general are largely affective measures, whereas self-reported life satisfaction is generally based upon cognitive appraisals.<sup>6</sup>

### WELLBEING INDICATORS IN PRACTICE

The science of subjective wellbeing has not been without its critics. Some criticisms of the practical methods employed include:

- ♦ How capable and truthful are individuals when confronted with these sorts of questions?
- ♦ Can a rating on a ten-point scale really provide a meaningful indicator of something as complex as human wellbeing?
- ♦ Do linguistic barriers and cultural diversity permit valid comparisons of subjective wellbeing ratings in different countries and cultures?
- ♦ In sum, are measures of subjective wellbeing simply too subjective to be valuable?

Other criticisms have been rooted in human psychology. Studies have shown that people's assessments of their own wellbeing are subject to cognitive influences. That is to say, the effects of mental processes, and not just real-world events, strongly influence life satisfaction survey results. Survey respondents exhibit habituation (reduced responsiveness to repeated or continued stimulus), aspiration (expectations correlated with current and past attainments), social comparison (relative versus absolute levels), and coping (adaptation to misfortune).

These are fair questions. However, researchers in this field have produced a significant body of evidence suggesting that subjective utility is a sufficiently reliable, valid, and consistent measure of wellbeing.

The evidence includes:

- ♦ Demonstrations that individuals' assessments of their wellbeing respond to real-world events and are not merely the result of mental processes. Despite cognitive influences, individuals' reported wellbeing responds in predictable ways to observable changes -- or

a lack of changes -- in real-world events and conditions.<sup>7</sup> Socio-economic panel surveys that track individuals over time, for instance, demonstrate rising levels of wellbeing in anticipation of marriage, a period of marital bliss, and then subsequent habituation to the new life situation. Yet the 'baseline level' of reported wellbeing among married people remains higher than for the unmarried. Hence, it is clear that individuals' self-assessments of their wellbeing are affected by changes in circumstances, despite the effects of mental processes.<sup>8</sup>

- ♦ *Demonstrations that survey responses are not arbitrary.* Different measures of wellbeing such as life satisfaction, happiness, or best versus worst life assessments correlate with each other, as well as with physiological responses such as electrical brain activity, heart rate, frequency of smiles during social interaction and work absenteeism.<sup>9</sup> Behavioural correlates have also been observed. For example, higher national average levels of wellbeing correlate with lower national suicide rates.<sup>10</sup> Evidence thus suggests that even simple survey questions can reveal meaningful differences in wellbeing among people.<sup>11</sup>
- ♦ *Demonstrations of validity in different cultural contexts.* Studies also show that wellbeing is affected by similar influences across cultures in spite of its subjective nature and potential linguistic biases. The survey responses of bilingual respondents and of speakers of different languages in the same country tend to be highly correlated. Seminal research in this area, covering 14 nations with a wide range of cultures and in different stages of economic development, investigated individuals' expectations for life by means of open-ended questions. Responses almost always related to material living standards, family concerns, good health and a good job, followed by domestic and international concerns. This does not imply that interpersonal comparison between any two individuals will yield meaningful conclusions, but it does give credibility to comparisons of subjective wellbeing among sizable groups of people, such as the populations of different countries.<sup>12</sup>
- ♦ *Demonstrations that the simple scales used in these questions produce valid results in practice.* Obviously, different points on a ten-point scale will mean different things to different people. We cannot define how a person's subjective wellbeing rated at seven differs from a person's subjective wellbeing rated at eight. The numbers have no inherent meaning. However, for statistical analyses that use large samples to explain variations in subjective wellbeing, this does not pose a problem. Different understandings of the ratings will create what statisticians call 'measurement error'. But with a sufficiently large sample, the sensitivity of the analysis to individual measurement error is small.<sup>13</sup>

In summary, the theoretical objections to subjective utility measures are relatively unimportant for practical purposes. Subjective wellbeing indicators are adequately reliable and consistent, while cultural biases are not strong enough to undermine the usefulness of cross-national comparisons.

Furthermore, such indicators provide a quantifiable measure of individual welfare, the validity of which is neither contingent on the truth of theoretical assumptions about what a 'prosperous life' is, nor dependent on normative claims about what people or nations should do to become more prosperous. Like GDP, and in contrast to social indicators, subjective wellbeing provides a single, comprehensive measure that allows for analysis of national prosperity, rather than reflecting a set of policy objectives.

### 1.3 The Case for the Legatum Prosperity Index

#### GROWING INTEREST IN WELLBEING

The arguments regarding the limits of GDP are not simply a matter of academic debate. There is growing interest worldwide in understanding prosperity in terms that go beyond material standards of living, and comprehend more holistically the human person.

This interest has produced a surge in the number of books and newspaper articles covering research on subjective wellbeing. Increasingly, the idea that determinants of happiness are rooted not only in material progress, but also in broader social and political realities, is gaining academic attention and empirical support.

Thirty years ago, Ronald Inglehart argued that a shift was taking place from materialist to post-materialist values in the Western world. His research suggested that political cultures in affluent Western societies had come to place more value on non-material issues, such as the environment or political liberties, than on economic security and material living conditions.<sup>14</sup>

While it is possible to find many points to dispute in such a broad argument, Inglehart's provocative assertions certainly succeeded in launching an interesting (and ongoing) debate. Moreover, his arguments now seem prescient, as increasingly affluent societies have indeed come to prioritise non-material sources of prosperity to a greater degree.

This trend is not confined to the West. Some governments in Asia have launched their own investigations into subjective wellbeing. The government of Bhutan, for instance, has announced that Gross National Happiness is the country's primary development objective. More broadly, in a region that has experienced extraordinary economic growth in recent decades, there seems to be a mounting realisation in some sectors that prosperity entails more than the material wellbeing produced by that growth.<sup>15</sup>

In 2007, the OECD, the European Commission, the Organisation of the Islamic Conference, the UN, and the World Bank signed the Istanbul Declaration. This endorses "the progress of societies in all their dimensions". This initiative at a supranational level reflects the importance that policymakers are now placing on the establishment of a comprehensive and internationally accepted measure of prosperity, or, in the words of the declaration: "to form a shared view of societal wellbeing and its evolution over time".<sup>16</sup>

#### THE LEGATUM PROSPERITY INDEX

The Legatum Prosperity Index has been produced within the larger context of this debate on the nature of prosperity. The Index seeks to investigate human flourishing in a way that is grounded in empirical research and faithful to those aspects of wellbeing that appear to be universal, regardless of national origin.

With the growing recognition of the importance of alternative measures of prosperity, what is needed is an understanding of how nations can become more prosperous -- both in terms of enhancing GDP and enhancing subjective wellbeing. The Legatum Prosperity Index is a response to this need.

The Index is *not* designed to identify the happiest and wealthiest nations. Instead, it is an Index of the drivers of prosperity rather than an index of prosperity outcomes. Specifically, the Index ranks nations on how well they are doing the kinds of things necessary to raise GDP (i.e., enhancing economic competitiveness) and to raise average subjective wellbeing or life satisfaction (i.e., enhancing comparative liveability).

The research conducted to create the Index (discussed in the next chapter) suggests that the factors that tend to increase average subjective wellbeing are sometimes different from the factors that tend to increase GDP. This further underlines the insufficiency of GDP as a holistic measure of national welfare. Moreover, many factors, such as good governance, appear to enhance both competitiveness and liveability. However, some factors that have limited immediate effects on economic performance -- such as people's satisfaction with air quality -- do appear to impact subjective wellbeing significantly.

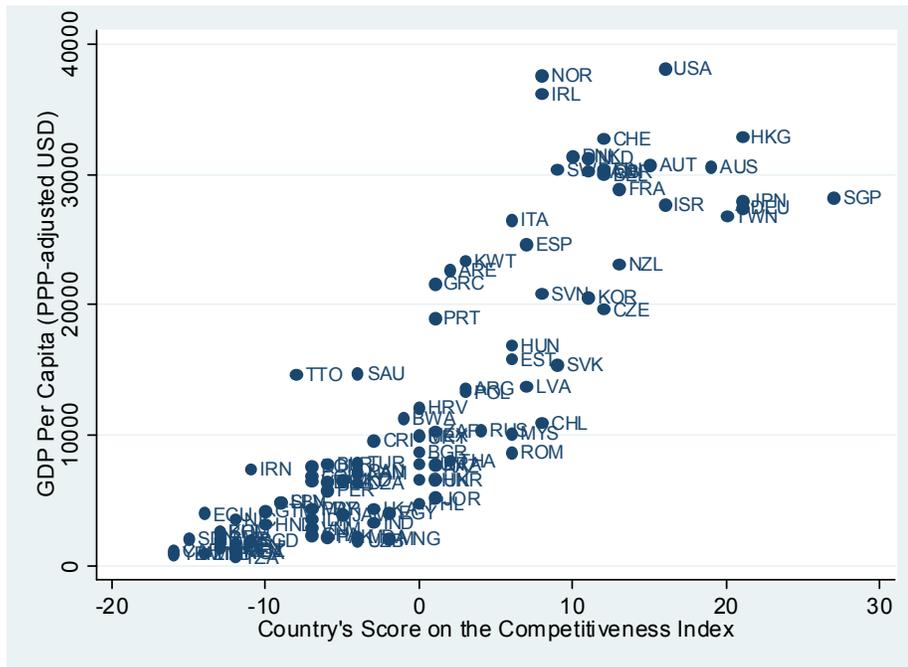
The Legatum Prosperity Index is a tool that enables individuals and governments to draw on new research to inform personal decisions and policy choices regarding the prosperity of their societies. Following a statistical approach, the Prosperity Index is founded on the belief that sound indicators both empower citizens and enhance the transparency and accountability that are central to the democratic policymaking process.

#### COMPARING PROSPERITY INDEX SCORES AND PROSPERITY PERFORMANCE

While the factors in the Index have been included on the basis of empirical evidence, their selection and the research behind the Prosperity Index are informed by certain assumptions about how national wellbeing can be enhanced. For this reason, and because of limits in our understanding of how economic growth and subjective wellbeing are produced, country scores on the Index differ somewhat from wellbeing outcomes.

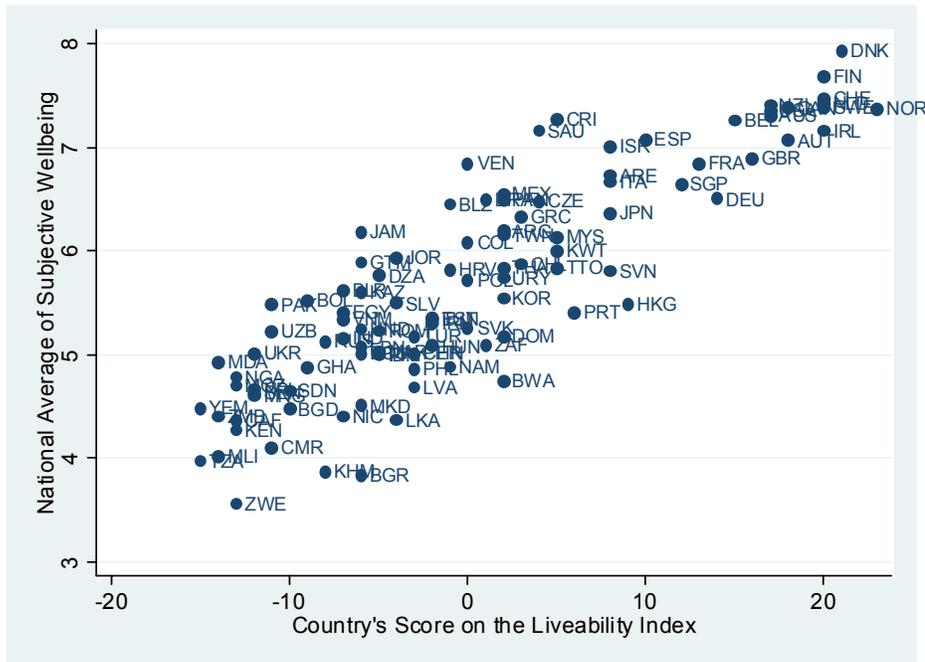
However, overall the Index does correlate very strongly with prosperity outcomes. A country's competitiveness and liveability scores on the Prosperity Index explain 75% and 76% of the variation in average per capita incomes and average subjective wellbeing, respectively (adjusted R-squared values are 0.75 and 0.76). For a further discussion, see Figures 1.1 and 1.2.

**FIGURE 1.1 SCATTERPLOT OF COUNTRY SCORES ON THE LEGATUM INDEX OF ECONOMIC COMPETITIVENESS AGAINST INCOME PER CAPITA**



The scatter shows the correlation between a country's score on the Competitiveness Index and its actual per capita income at purchasing power parity. A few countries are notably wealthier than the Index would predict, especially Norway (NOR), Saudi Arabia (SAU) and Trinidad and Tobago (TTO). Many of the differences are driven by commodity exports, which enter the Index as a negative influence on long-term growth, but have enhanced income in the current high-oil-price environment. Another major driver of differences (especially for Norway) is entrepreneurship. While there is a significant correlation between income growth and entrepreneurship indicators in wealthy countries, there are a few countries with low entrepreneurship scores that have nonetheless experienced rapid income growth. There are also a few countries that are less wealthy than the Index would predict. Many of these differences can be ascribed to the difficulty of creating quantitative measures of human capital (see the review of this indicator in the following section).

**FIGURE 1.2 SCATTERPLOT OF COUNTRY SCORES ON THE LEGATUM INDEX OF COMPARATIVE LIVEABILITY AGAINST AVERAGE SUBJECTIVE WELLBEING**



The scatter shows the correlation between a country's score on the Liveability side of the Prosperity Index and average self-reported life satisfaction of individuals on a national sample survey, the Gallup World Poll. A few countries are notably less happy than the Index would predict: Botswana (BWA), Portugal (PRT) and Hong Kong (HKG). The reasons for these differences are not immediately apparent, although all three of these countries are notable for having achieved extremely rapid increases in income. A few other countries, such as Venezuela (VEN) and Jamaica (JAM), are happier than the Index would predict.

#### THE PROSPERITY INDEX REPORT

Following this chapter are several others:

Chapter 2 introduces the research methodology used to compile the Index and some key findings of this analysis.

Chapter 3 presents an analysis by David Audretsch of the relationship between entrepreneurship and economic growth.

Chapter 4 presents an assessment by Arthur Brooks of the link between charity and happiness.

Chapter 5 presents an exploration by Paolo Verme of the importance of freedom of choice to life satisfaction.

Chapter 6 presents country profiles for the 104 countries in the Index.

<sup>2</sup> See Offer, Avner.2006. "Economic Welfare Measurement and Human Wellbeing". Chapter 2 (pp 15-39) in *The Challenge of Affluence: Self-Control and Wellbeing in the United States and Britain Since 1950*. Oxford: Oxford University Press.

<sup>3</sup> Sen, Amartya. 1985. *Commodities and Capabilities*. Oxford: Oxford University Press.

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<sup>4</sup> See Kahneman, D. and A. Tversky. 1979. "Prospect theory: An analysis of decisions under risk". *Econometrica* 47: 313-327.

<sup>5</sup> Common survey questions are "How happy are you these days?", "How satisfied are you with your life overall?" or "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?".

<sup>6</sup> Cognitive appraisals tend to emphasise the difference between how the person feels at the beginning of an experience and how they feel at the end. For example, individuals tend to think that a bad experience which ends well was less unpleasant than an equally bad experience during which the good part came in the middle (a bias that can be demonstrated by comparing people's retrospective evaluations of medical procedures). The Prosperity Index is based on these cognitive assessments of life satisfaction. It is a matter of debate as to what ought to be maximised: how happy people are, or how happy they think they are (loosely speaking). For instance, focusing on cognitive appraisals, which are based on reflection after-the-fact, may make sense because these appraisals are more likely to drive future behaviour when determining whether to undertake an activity again.

<sup>7</sup> Heady, Bruce and Alexander Wearing. 1991. "Subjective Wellbeing: A Stocks and Flows Framework". In *Subjective Wellbeing: An Interdisciplinary Perspective*, ed. Fritz Strack, Michael Argyle and Norbert Scheewarz: 7-26. Oxford: Pergamon Press.

<sup>8</sup> See Clark, Andrew E., Ed Diener, Yannis Georgellis and Richard E. Lucas. December 2006. "Lags and Leads in Life Satisfaction: A Test of the Baseline Hypothesis". *Discussion Paper Series IZA DP 2526*, Bonn: Institute for the Study of Labour (IZA).

<sup>9</sup> For a survey of evidence on the correlation of measures of subjective wellbeing with physical responses, see Frey, Bruno S. and Alois Stutzer. 2002. *Happiness and Economics*. Princeton: Princeton University Press.

<sup>10</sup> Helliwell, John F. 2004. "Wellbeing and Social Capital: Does Suicide Pose a Puzzle?". *National Bureau of Economics Working Paper W10896*.

<sup>11</sup> The validity of subjective assessments has been supported by its demonstrated correlation with objective outcomes in other fields as well. Compare Idler, Ellen L. and Yael Benyamini. March 1997. "Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies". *Journal of Health and Social Behavior*, 38(1) :21-37.

<sup>12</sup> Easterlin, Richard. 2001. "Income and Happiness: Towards a Unified Theory ". *The Economic Journal* 111 (473): 465-484.

<sup>13</sup> Di Tella, Rafael, Robert J. MacCulloch and Andrew J. Oswald. November 2003. "The Macroeconomics of Happiness". *The Review of Economics and Statistics* 85(4): 809-827.

<sup>14</sup> Inglehart, Ronald. 1977. *The Silent Revolution: Changing Values and Political Styles Among Western Publics*. Princeton: Princeton University Press.

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<sup>15</sup> See for instance the Happiness and Public Policy Conference, 18-19 July 2007, Bangkok. [http://www.ppdoconference.org/about\\_ppdo\\_conference.php](http://www.ppdoconference.org/about_ppdo_conference.php) as well as

“National Prosperity Index and Societal peace: National Development Through Integrative Growth”. Address of the President of India at the Annual Convocation of the Panjab University, Chandigarh, 07 March 2007.

<http://admser.chd.nic.in/uploadfiles/press/pressnote/pr1160.pdf>

<sup>16</sup> OECD, “2<sup>nd</sup> World Forum on “Measuring and Fostering the Progress of Societies” Istanbul, 27-30 June 2007. <http://www.oecd.org/dataoecd/24/58/39637799.pdf>.

See also “Measuring Progress, True Wealth, and the Wellbeing of Nations”. International Conference, 19-20 November 2007, Brussels. <http://www.beyond-gdp.eu/>

## 2. Methodology

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### 2.1 How We Built the Index

The indicators used to construct the Legatum Prosperity Index show an empirical link with either long-term economic growth or average national life satisfaction.<sup>17</sup> Indicators that did not show such a link were, in general, not included in the Index. The selection of indicators that were tested was based in large part on existing research into factors that drive national prosperity, both in terms of material wealth and subjective wellbeing. A full review of this research appears in sections 2.2 and 2.3.

This chapter explains some of the values and assumptions behind the Prosperity Index. It describes the construction of the Index, the weighting schemes applied, and an overview of the particular indicators that were included as key drivers or restrainers of prosperity.

#### COMBINING COMPETITIVENESS AND LIVEABILITY

The two halves of the Prosperity Index, Economic Competitiveness and Comparative Liveability, are evaluated separately and then weighted equally.<sup>18</sup>

While the Economic Competitiveness section of the Index is based on the traditional criteria of *economic* development, the Comparative Liveability section reflects the view that human *flourishing* is also based on the consideration of non-material goods. The separation of the two sides enables the reader to compare the evaluation of a particular country according to the traditional paradigm (Economic Competitiveness score), from the perspective of human development (Comparative Liveability score) and a combined view — the overall Index score.

The Economic Competitiveness section of the Index focuses on prosperity as it has traditionally been measured, as economic growth and wealth accumulation. For this reason, the Competitiveness pillar of the Index has much in common with many other indices of growth competitiveness, recognising that a functioning market economy is indispensable for a country's economic development, although we hope the Index contributes to the ongoing debate concerning drivers of economic growth rather than economic outcomes alone.

The Comparative Liveability side of the Index is intended as an assessment of the wellbeing equivalent of competitiveness -- that is, as competitiveness is to growth, so liveability is to wellbeing.<sup>19</sup>

The combination of Competitiveness and Liveability produces a ranking of the drivers of national prosperity.

#### CONSIDERING DIFFERENT LEVELS OF DEVELOPMENT

While focussing on determinants of prosperity that appear to be universal regardless of national origin, the Index does take account of the fact that countries are not homogenous and that there are dynamics inherent to different levels of economic development. Hence the Index uses a dynamic weighting scheme. This means, for instance, that the relative importance of capital, trade openness or entrepreneurship may change as countries reach higher levels of national wealth.

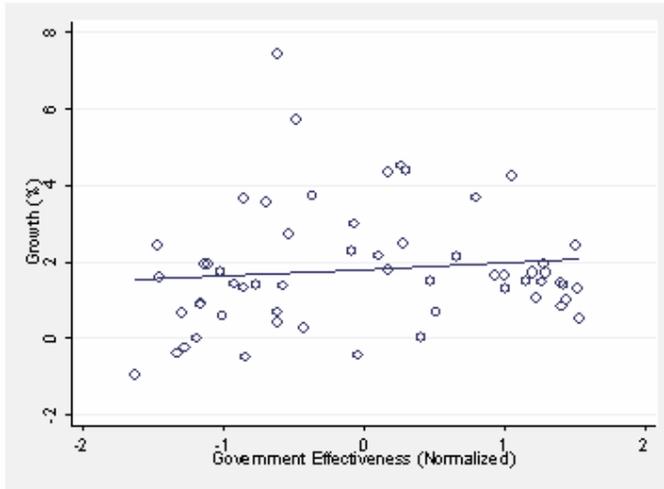
Accordingly, the criteria used to assess the performance of a particular country will not remain static but will change with rising (or falling) income levels. This coincides with some intuitive notions -- for instance, a major economic downturn might change the main concerns people have, and lead individuals to re-consider national policy priorities.

In technical terms, the first step in determining the importance of factors in the Index is to group countries into sub-samples of similar GDP levels and derive factor weights via regression analysis. Our method of 'locally weighted scatterplot smoothing' (LOWESS) does not require specifying a global function across all income levels.

Instead, at each level of GDP per capita, a least squares regression of the indicator on the outcome variable is run for a band of observations around the point, with more weight given to observations closer to the point ('locally weighted'), resulting in a LOWESS curve. To illustrate

this concept, a traditional least squares regression analysis of the relationship between governance on growth is shown in Figure 2.1. A locally weighted analysis of this relationship is shown in Figure 2.2.

In the Prosperity Index, the impact of governance on growth is linked to a third variable, GDP

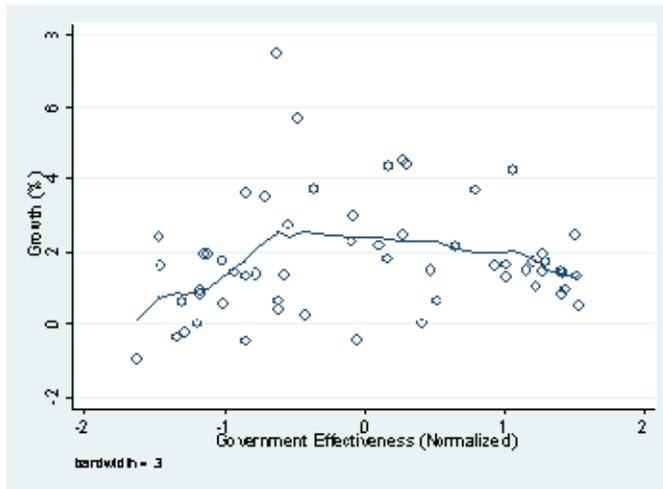


levels, as shown in Figures 2.3 and 2.4 (hence these graphs have three dimensions).<sup>20</sup> The regression coefficient shifts as a country's income changes.

**FIGURE 2.1 ILLUSTRATION OF THE RELATIONSHIP BETWEEN GOVERNMENT EFFECTIVENESS AND ECONOMIC GROWTH, AS ASSESSED BY A STANDARD LINEAR REGRESSION**

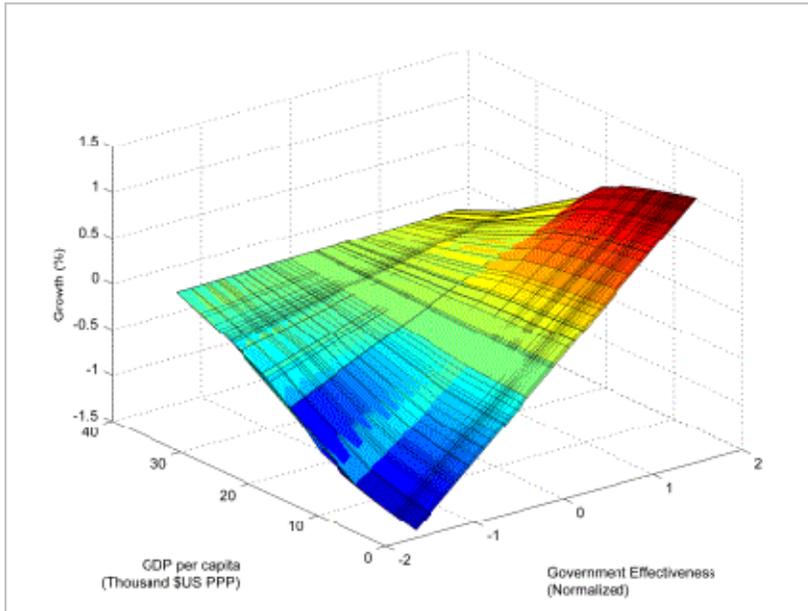
This chart illustrates a basic linear regression of per capita GDP growth against (normalised) government effectiveness scores and controls (a convergence term, annualised growth in capital stock per worker, and average years of secondary education) for the whole sample. If we used this regression coefficient to set the weight for government effectiveness in the Index, the weight of government effectiveness would be the same in both rich and poor countries. Because the slope of the line is so flat, the weight would be quite low indeed.

**FIGURE 2.2 ILLUSTRATION OF THE RELATIONSHIP BETWEEN GOVERNMENT EFFECTIVENESS AND ECONOMIC GROWTH, AS ASSESSED BY A LOWESS REGRESSION**



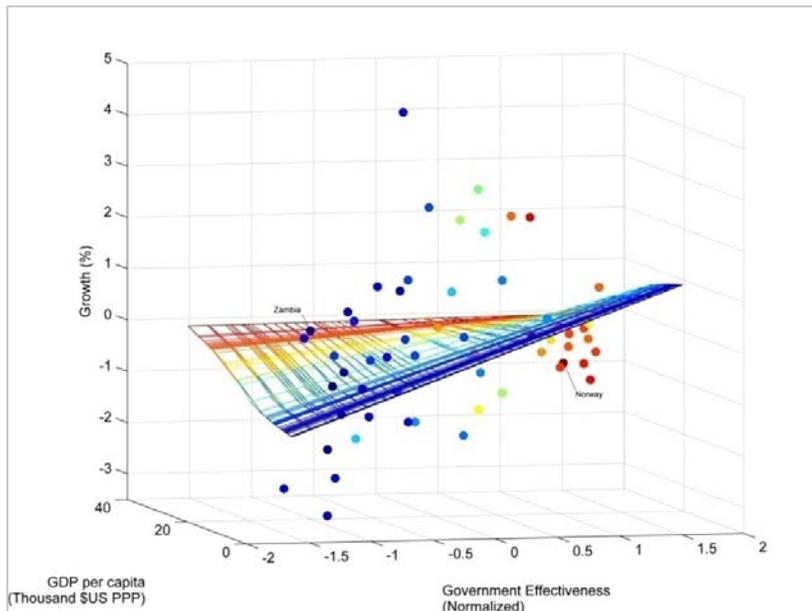
This chart by contrast illustrates a LOWESS regression of per capita GDP growth against (normalised) government effectiveness scores and controls (the output gap, annualised growth in capital per worker, and average secondary education). The smoothed line is constructed by fitting separate straight lines for each level of government effectiveness, each time giving observations close to that score more weight in the regression than those further away. A moving band of observations with a bandwidth of 30% of the sample is used to derive the LOWESS curve. The steep slope at low levels of effectiveness and flat slope at high levels of effectiveness mean that improvements on this particular indicator of governance will benefit weakly-governed countries more than countries that are already strongly-governed.<sup>21</sup>

**FIGURE 2.3 THE RELATIONSHIP BETWEEN GOVERNMENT EFFECTIVENESS AND ECONOMIC GROWTH, VARYING BY INCOME**



Predicted per capita GDP growth as a function of (normalised) government effectiveness score and per capita GDP (controlling for the output gap, capital per worker, and average secondary education), demonstrating the derivation of the Prosperity Index weights. At each level of per capita GDP, growth is predicted as a linear function of government effectiveness, with the slope of the function allowed to vary with GDP. In poor countries, government effectiveness and growth are highly correlated. However, this correlation abates as GDP per capita increases.

**FIGURE 2.4 THE RELATIONSHIP BETWEEN GOVERNMENT EFFECTIVENESS AND ECONOMIC GROWTH, SHOWING SELECTED COUNTRIES**



Scatter plot of per capita GDP growth against government effectiveness and per capita GDP, with fitted LOWESS surface. At each level of GDP, we fit a linear regression of growth on government effectiveness, giving countries close to that level of GDP (which are shaded similarly on the graph) more weight than those further away. For example, we obtain a significant positive relationship between growth and government effectiveness for Zambia (with a per capita GDP of \$850), represented by the line at the near edge of the LOWESS surface. On the other hand, there is only a weak relationship between growth and government effectiveness for Norway (with a per capita GDP around \$35,500), as shown by the line at the far edge of the LOWESS surface. Accordingly, the Prosperity Index weighting posits that Zambia could benefit more than Norway from better governance.

## MAKING THE BIGGEST DIFFERENCE

The Prosperity Index accounts for the fact that the importance of factors driving prosperity may change with income; it also makes an initial assessment of factors' importance relative to each other.<sup>22</sup> In practical terms, the Index attempts to show the prosperity indicators where policymakers (and citizens) can potentially make the biggest difference, mindful that decision-making often requires managing limited resources and making necessary trade-offs.

Because of this, the second step in determining the importance of factors in the Index is to set the weights relative to each other. We do this by constraining the weights to sum to one. Since the regression coefficients of Index factors change with income, they also change relative to each other. For instance, in absolute terms, the regression coefficient for satisfaction with freedom of choice increases by about one-third over the whole income spectrum (suggesting that the importance of freedom of choice increases by about that amount as countries become richer). But, when compared to the changing weights of all the factors in the Prosperity Index, the relative importance of freedom of choice increases twenty-fold.

This is important for the consideration of tradeoffs. To the extent that a country must make a choice between pursuing one area of prosperity or another, and cannot choose both, relative importance matters. The Index suggests that satisfaction with freedom of choice is far more important in Norway (with a per capita income of nearly 72,000 USD in purchasing power terms) than in Liberia (with an income of 170 USD per head). This is mainly because the importance of raising incomes in Liberia is so overwhelming, since poverty leads to malnutrition and ill health (which have profound and immediate negative impacts on life satisfaction).

Figure 2.5 and Figure 2.7 in the sections introducing the Economic Competitiveness Index and the Comparative Liveability Index illustrate the relative importance of each of the Index indicators and how relative weights on these indicators change with increasing income.

## WHY USE A DYNAMIC WEIGHTING SCHEME?

The production of any index must navigate the balance and trade-offs between complexity and accessibility. In the case of the Prosperity Index, the fact that so many different factors account for economic growth and subjective wellbeing supports using a more complex model.

Furthermore, these factors must be combined in complicated ways. For example, most studies on subjective wellbeing reinforce the finding that people begin to place greater value on non-material goods as personal incomes rise. Similarly, countries at different stages of economic development have diverging needs when it comes to prioritising policies and policy targets. The economic structure of developing countries tends to differ from early industrialisers, and so do their paths to growth.<sup>23</sup>

Additionally, a central purpose of the Index is to support further research into the drivers of material wealth and particularly subjective wellbeing. As the Index is partially based on this comparatively recent field of research, communicating insights from empirical analysis of the relative importance of wellbeing correlates has particular value.

## 2.2 Building the Economic Competitiveness Index

### AN APPROACH BASED ON GROWTH MODELS

There are two different theoretical frameworks dominating the derivation of economic growth equations that are used for statistical research: the neoclassical growth model and the endogenous growth model.<sup>24</sup> The factors included in the Economic Competitiveness Index are drawn from the empirical academic literature on these models.

The neoclassical model implies that economies further away from their steady states will grow faster. In order to obtain meaningful results, however, most specifications of these models (for the purposes of statistical testing) control for variables that affect the long-run equilibrium of the economy, such as the savings rate, openness to trade, the rule of law, and human capital stock.<sup>25</sup>

Endogenous growth models imply that knowledge accumulation acts as a production input with increasing marginal returns. Accordingly, the speed of income growth is endogenously determined by the country's ability to absorb new knowledge from technologically more advanced countries, or, in the case of the most advanced economies, the ability to foster innovation. Countries' 'absorptive capability' in turn is affected by environmental variables, which reflect theoretical assumptions on the nature of technological diffusion. For instance, human capital, openness and R&D expenditures are variables that are hypothesised to influence technological catch-up.<sup>26</sup>

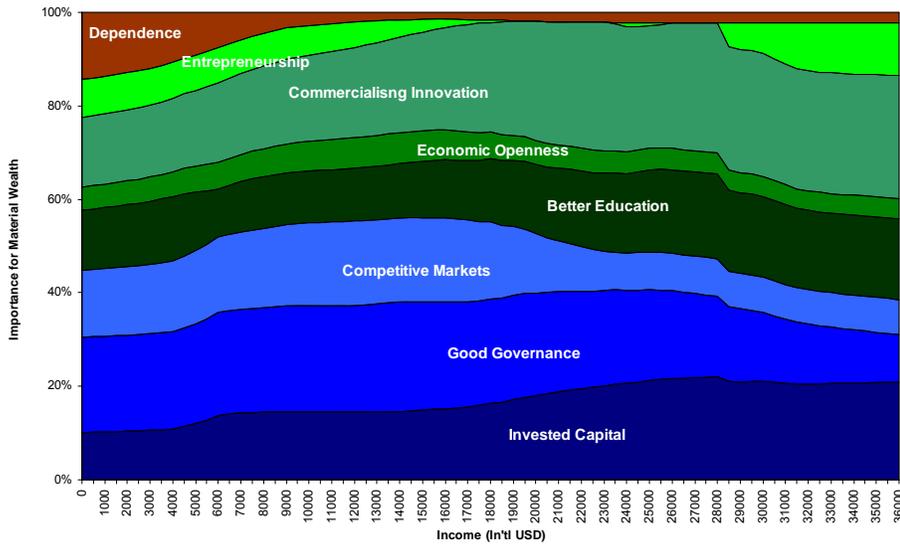
The Economic Competitiveness Index evaluates how well countries perform in areas essential to long-term economic growth. For the purposes of presentation, it assesses countries along three dimensions: investing productively, commercialising new ideas, and avoiding dependency.

Before the endogenous growth theory introduced human capital as a main determinant of material wealth accumulation, growth-oriented policies traditionally focussed on capital investments and advances in labour productivity. Innovation, research and high-skilled labour, together with the entrepreneurial capacity that enables commercialisation of new ideas, have since been recognised as essential to economic growth in knowledge-based economies.<sup>27</sup> On the other side of the income spectrum, dependency on commodity exports -- the 'natural resource curse' -- and the ambivalent effects of foreign aid have been central to the discussion of development policies.<sup>28</sup>

We created our own cross-country historical data sets to test and weight the factors suggested by this literature as determinants of long-term economic growth. We included each candidate factor in a regression including a convergence term, growth in capital per worker, and growth in average years of secondary education per worker, with growth in GDP per worker as the dependent variable. For candidate factors that achieved significance in these regressions, weights were assigned using the LOWESS method described above. Furthermore, factors were grouped into areas such as good governance, economic openness or dependence, summing their weights together.

The candidate factors for the Economic Competitiveness Index were tested in regressions on three separate datasets: medium-term and long-term data for both rich and poor countries, and a panel data set for industrialised countries. The long-term dataset is the core dataset. The medium-term dataset was used for factors for which historical data are unavailable (such as the World Bank Governance Indicators). The panel data set was used for factors for which historical data are only available for very few countries (such as price levels).<sup>29</sup>

**FIGURE 2.5. WEIGHTS FOR THE COMPETITIVENESS INDEX FACTORS AS ASSIGNED BY LOWESS REGRESSION**



*Widths of bands represent percentage weights as components of a total Economic Competitiveness Index score. The three main categories in the Index are Investing Productively (shown in shades of blue, declining in weight as countries become wealthier), Commercialising New Ideas (shown in shades of green, rising in weight as countries become wealthier), and Avoiding Dependence (shown in red, declining in weight as countries become wealthier).*

The factors included in the Economic Competitiveness Index, along with their approximate weights in the Index, are reviewed below.

#### INVESTING PRODUCTIVELY

##### *Capital investment*

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Capital stock per worker	Own estimation using a perpetual inventory method	10% at the lower end of the income scale rising to 20% at the upper end

Investment in a country's physical capital stock, such as factories and equipment, is central to long-term economic growth. In addition to directly expanding the size of an economy, increased capital investment may generate higher long-term rates of growth, because investment brings new technology into use, although this is controversial. The argument is made most strongly in respect to investment in equipment, at least in developing countries.

Statistical evidence of a link between capital and growth is not hard to find; however, there is substantial debate over whether this relationship is indeed causal. While investment rates are an obvious statistical difference between low-growth Africa and high-growth Asia, there are many countries with identical investment rates but very different growth rates.

Some estimates indicate that fixed capital stock may account for up to 80 percent of the variation in income across countries (controlling for education stocks). While such research findings -- which imply a very small role for technology differences -- are contentious,

investment in physical capital is widely accepted as being fundamental to medium-term growth, if leaving a substantial role for technology and policies.<sup>30</sup>

The measures of physical capital stock used in the Index are estimated following standard techniques, although there are limitations on data quality in some cases, such as post-communist countries where the historical capital stock is difficult to value. While some research suggests that capital accumulation becomes less important as countries become richer, our analysis finds this factor to remain of roughly equal importance across the income spectrum.<sup>31</sup>

### Governance

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Government effectiveness	World Bank Governance Indicators	16% at the lower end of the income scale falling to 2% at the upper end
Regulatory quality	World Bank Governance Indicators	5% at the lower end of the income scale rising to 10% at the upper end

Both new capital investments and new product developments, which are central to the growth process, are very likely to be inhibited when there is uncertainty about the rule of law and about property rights (including copyright and patent protection), when there is a tendency towards arbitrary policy reversals; and where corruption — in all its many manifestations — is rife.

In some extreme instances such as during post-communist transitions, these impacts have been observed directly. In these cases an institutional vacuum clearly resulted in a collapse in output (in Russia, for instance, private property rights were introduced, but not adequately enforced, contributing to a dramatic redistribution of the country's wealth, and the flight of a great deal of Russian capital offshore).

Statistical relationships are also easy to find. Institutional quality, measured by World Bank Governance Indicators, has been found to potentially have a larger impact on long-run growth than geography or trade,<sup>32</sup> and rates of economic growth have been shown to be highly conditional on regulatory quality.<sup>33</sup>

The Prosperity Index indicates that improving governance has less of an effect on growth as countries develop.<sup>34</sup> More specifically, government effectiveness -- that is, the quality of public services, the capacity of the civil service and its independence from political pressures, as well as the quality of policy formulation -- appears particularly important for boosting growth in poor countries. Regulatory quality -- that is, the ability of the government to provide sound policies and regulations that enable and promote private sector development -- seems to have a larger impact on economic growth in high-income countries.<sup>35</sup>

## Competition

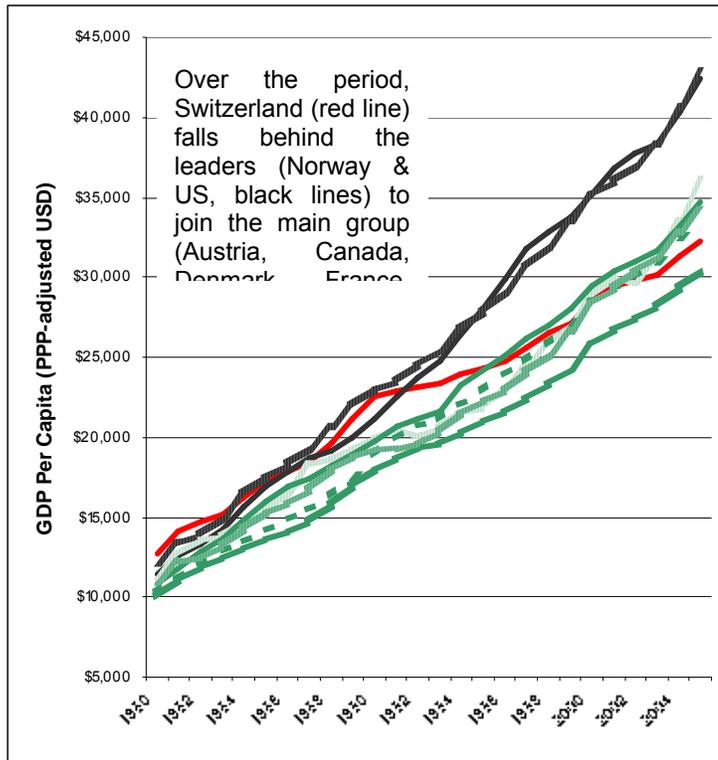
Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
The residual from a regression of the PPP to exchange rate ratio on GDP per capita	IMF	16% at the lower end of the income scale falling to 2% at the upper end
Ratio of the Consumer Price Index to the Wholesale Price Index	World Development Indicators	5% at the lower end of the income scale rising to 10% at the upper end

Broadly, research on competition suggests that domestic taxation of industry, import tariffs, or competition policy more generally, can lead to uncompetitive domestic markets with adverse effects on growth.<sup>36</sup> Specifically, Switzerland, despite having lagged in income growth for more than a decade, scores well on most correlates of growth performance.<sup>37</sup> OECD research suggests that this anomaly can be explained by a lack of competitiveness in Swiss markets.

While the level of competition is difficult to measure in statistical terms, we did find significant correlations for the price differential variables suggested by the OECD as an indicator of reasons underlying Switzerland's slow growth. There is also some research that suggests that deviations from purchasing power have negative economic effects.<sup>38</sup>

Within the Prosperity Index, the PPP (Purchasing Power Parity) to market exchange rate ratio has a strong, significant relationship with growth in advanced economies, while low consumer price to wholesale price index ratios are important for low and middle-income economies.

**FIGURE 2.6. INCOME GROWTH FOR SWITZERLAND AND OTHER RICH COUNTRIES,**



**1980-2005**

COMMERCIALISING NEW IDEAS (OR INNOVATION AS PER FIGURE)

*Economic openness*

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Trade Freedom Index	Heritage Foundation	2% at the lower end of the income scale rising to 4% at the upper end
Imports + exports + FDI as a proportion of GDP	World Development Indicators and UNCTAD	2% at the lower end of the income scale rising to 4% at the upper end
Number of regional trade agreements notified to the WTO	WTO	3% at the lower end of the income scale falling to 0% at the upper end

Openness to trade increases the availability and reduces the cost of developing or acquiring new and more productive goods and technologies that sustain the growth impetus. Integration with world markets and subsequent specialisation as a result of international trade leads to increasing returns on investment and technology transfer.<sup>39</sup>

While there is considerable controversy surrounding statistical research regarding the benefit of trade openness, even the most challenging evidence tends to suggest that the positive effect of openness may be conditional on other factors.<sup>40</sup> At the individual case level, the *prima facie* evidence for a strong, significant relationship between trade openness and growth is almost overwhelming. This includes the extended growth surges enjoyed by countries that joined the Common Market/European Community.

Foreign direct investment (FDI) has been shown to boost growth, both by directly increasing investment in physical and human capital, and as a mechanism for technology transfer. Evidence of this positive impact is strong, especially in some of the transition countries, where much of the inherited capital stock was inefficient and domestic savings rates were low. More generally, there is evidence that, given a minimum human capital stock, FDI in developing countries induces higher growth than domestic investments.<sup>41</sup>

However, like trade openness, this impact may vary. The scale of FDI inflows to poor countries has been smaller than anticipated, and — as in Africa — much FDI to developing countries has been concentrated in the natural resource sectors, where its impacts on productivity and hence long-term growth are limited.

The Economic Competitiveness Index includes three openness indicators: an assessment of trade policies produced by the Heritage Foundation, the number of regional trade agreements a country has signed,<sup>42</sup> and international trade and FDI as a share of domestic production. Each of the openness indicators shows a significant correlation with per capita income growth in our tests. We have tested and presented these indicators without an adjustment for market size. Hence, countries with large domestic economies may wish to focus less on this indicator.

### *Education*

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Average years of secondary education per worker	Own estimation	13% at the lower end of the income scale rising to 18% at the upper end

The potential routes for 'more' education to impact economic growth are twofold. Firstly, the greater the number of educated people, the greater the productive capacity of the economy; and secondly, the more educated the workforce, the greater the capacity of individuals to build on the ideas of others and, hence, the greater the scope and pace of technological innovation.

Intuitively, a country's stock of human capital is augmented by spending (investment) in education, training and healthcare, along with a range of other improvements in social and living conditions that make it easier for people to realise their productive potential. However, capturing these effects empirically at the macroeconomic level has proven challenging, due to the difficulty of valuing human capital in statistical measures.<sup>43</sup> Research evidence is at least suggestive of the existence of the expected effects, both that human capital facilitates technology diffusion and innovation, and that increases in human capital directly increase the productivity of labour.<sup>44</sup> However, statistical measures of human capital, whether based on health or education levels, remain limited in their value at the macroeconomic level.

The main human capital measure in the Prosperity Index is average years of secondary education per worker, estimated based on enrolment, population size, and death probabilities. The number of researchers in R&D (listed under innovation, below) also provides an alternative human capital indicator.

## *Innovation*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Economic Competitiveness Score)</b>
Natural log of 1 plus high technology exports as a percentage of GDP	World Development Indicators, based on UN ComTrade Data	0% at the lower end of the income scale rising to 6% at the upper end
Natural log of researchers employed in R&D per million population	World Bank	8% at the lower end of the income scale rising to 10% at the upper end
Natural log of patent applications filed by office	World Intellectual Property Organization (WIPO)	6% at the lower end of the income scale rising to 8% at the upper end

Investments in research and innovation increase countries' relative total factor productivity and hence should be significant drivers of growth. R&D also creates technological 'spillover' effects. That is, new innovations are not only more productive in themselves; they also raise the productivity of subsequent innovators, enabling innovative economies to surge ahead of other economies.<sup>45</sup>

The evidence from statistical analysis on the economy-wide benefits of R&D is suggestive rather than compelling. The microeconomic evidence of high rates of return to firms engaging in R&D is strong, although there are significant measurement difficulties to be overcome.<sup>46</sup>

The indicators in the Prosperity Index are intended to reflect the process of the absorption of innovation, rather than spending on innovation itself. The most direct measure of innovation in the Index is patents.<sup>47</sup> A related measure is researchers in research and development positions as a share of the total workforce, which could also serve as an alternative indicator for highly skilled human capital. And finally, tradable high-technology products create growth partly by taking a high value on international markets, and partly because their trade additionally spurs growth on the importing side via knowledge transfer (so arguably, again, high-quality human capital is the actual driver of faster growth).<sup>48</sup> This last indicator is less relevant for countries with large domestic economies, as it is not adjusted for market size.

## *Entrepreneurship*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Economic Competitiveness Score)</b>
Natural log of 1 plus the cost of business start-up procedures as a percentage of GNI per capita	World Bank Doing Business Indicators	0.1% at the lower end of the income scale falling to 0% at the upper end
Business owners as a percentage of the labour force	COMPENDIA -- Van Stel, 2005	0% at the lower end of the income scale rising to 8% at the upper end

Entrepreneurship (as business ownership<sup>49</sup>) is widespread in poor countries. However, as this activity is concentrated in the informal sector, it may have little discernable impact on recorded growth. In the poorest countries, the challenge is the formalisation and growth of businesses -- not to increase the number of entrepreneurs as such, but to increase the number of entrepreneurs that prosper.<sup>50</sup>

It is easy to find statistical evidence of the link between economic growth and the business environment conditions to which smaller businesses are particularly vulnerable. Low costs of

doing business foster growth by facilitating commercial transactions for businesses (of all sizes). There is evidence that financial liberalisation, increasing the ability of growing businesses to obtain capital, raises growth at least in the short-term.<sup>51</sup>

In rich countries, the role of entrepreneurship is subject of some debate.<sup>52</sup> Some theories posit a crucial role for entrepreneurship as the driving force behind the commercialisation of innovation (for a full explanation, see Chapter 3: Entrepreneurship and Economic Growth). These theories suggest that for the richest countries, increasing entrepreneurship would be crucial.

In the Prosperity Index, the business environment conditions that constrain the growth of smaller businesses are represented by the cost of starting a business (including the costs of any licenses required, as well as the time-cost of bureaucratic procedures), a factor that has a positive weight only in low-income economies. In developed countries, it is the rate of business ownership that significantly correlates with growth differentials.

## AVOIDING DEPENDENCY

### *Commodity exports*

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Natural resource exports as a percentage of GDP	Historical data from Sachs and Warner, 1997. Current data from World Development Indicators	0.5% at the lower end of the income scale falling to 0% at the upper end

The negative impact of commodity exports on growth may arise partly due to economic distortions -- for example, inflows of funds from oil exports can cause exchange rate appreciation that undermines the competitiveness of other economic sectors. It is also possible that the long-term secular decline in terms of trade over recent decades adversely affected long-run growth.

Some have argued that the real source of the problem is not natural resource exports per se, but excessive government regulation and other policy-related rigidities that prevent private sector businesses from responding efficiently to trade shocks. Another interpretation is that mineral rents encourage distributional struggles that result in political, social and economic instabilities, which, in turn, undermine growth.

Irrespective of the reason, research evidences a significant, adverse impact on growth. The 'natural resource curse' has become common currency in policy circles to explain the lack of catching-up among a wide range of South American and African economies,<sup>53</sup> although the empirical evidence has not established clearly which effect is to blame.<sup>54</sup>

The Prosperity Index captures the 'resource curse' via the indicator of commodity exports as share of domestic production.

### *Foreign aid*

Indicator	Source	Approximate Weight (% of Economic Competitiveness Score)
Natural log of 1 plus foreign aid as a percentage of GDP	Historical data from Sachs and Warner, 1997. Current data from World Development Indicators	0.1% at the lower end of the income scale falling to 0% at the upper end

One of the key objectives of foreign aid is to enable the recipient country to advance its productive potential by alleviating the shortage of capital (i.e. to increase investment). However, whether foreign aid actually assists, inhibits, or has no effect on growth has been the subject of a long-running theoretical and empirical debate. This is not least because, as in many other cases, cause and effect are difficult to establish, since recipient countries may be the slowest-growing countries. Empirical findings on the impact of aid on developing economies have proven controversial and sensitive to the econometric techniques employed. Most of the prominent studies in support of positive and significant growth effects appear to be non-robust. These problems extend to studies finding beneficial effects of aid to be conditional on good fiscal, monetary and trade policy; as well as to studies that find negative impacts of aid on growth.<sup>55</sup>

In the Prosperity Index regressions, foreign aid as a share of GDP correlated negatively with long-term income growth over a 30-year period and is weighted accordingly.

## 2.3 Building the Comparative Liveability Index

### AN APPROACH BASED ON CROSS-NATIONAL ANALYSIS

Cross-national comparisons reveal significant differences in the average levels of subjective wellbeing in different countries. Beyond personality and demographic aspects, there are economic, contextual and institutional factors at the societal level that appear to impact individual wellbeing.

There is a small but growing literature on the determinants of the differences in wellbeing among nations. We created our own cross-country historical data set to test and weight the factors suggested by this literature, and by our own research, as determinants of life satisfaction differentials.

To select the factors that would appear in the Comparative Liveability Index, we included each candidate factor in a regression controlling for average income per capita, with average life satisfaction as the dependent variable. For candidate factors that achieved significance in these regressions, weights were assigned using the LOWESS method described above. Again, factors were grouped into areas such as climate, equality of opportunity or community life, summing their weights together.

The factors in the Comparative Liveability Index are presented in four categories: sources of misery, freedom and opportunity, social supports and environment for wellbeing.

The 'sources of misery' are those factors with which policymakers probably are most familiar. Reducing poverty and unemployment, as well as the need to provide voters with appropriate health care are common items on the political agenda. Income, a job and good health are essential to individuals' satisfaction with their life, and often feature on political platforms in response to electoral demands.

Also familiar are requests for 'freedom and opportunity', albeit in a much broader sense. Personal and political freedom and meritocracy constitute characteristics of prospering societies.

The necessity of building 'social supports' has regained salience in recent political debate, which recognises the importance of social capital, the dangers of demographic decline and the significance of religious faith in the domestic and international arena. While these issue-areas have wider economic and political implications, their significance for individuals' life satisfaction invites policymakers to reconsider these issues from a new angle — with the benefit of new data yielding new insights.

The 'environment for wellbeing' is also assuming a larger role in political discourse. Protection of the natural environment and the length of working weeks are electoral issues by now well-known to many governments in advanced economies.

## WHAT DOES COMPARATIVE LIVEABILITY MEAN IN PRACTICE?

While the Comparative Liveability Index contains many factors driven by individual choice, the weightings of the Index factors, as shown in Figures 2.7 and 2.8, reflect a comparative national perspective.

Based on the data available, for an individual seeking to raise his or her life satisfaction, a better family life is almost certainly more important than increases in income in rich and poor countries alike (contrary to what the weights shown in Figure 2.7 would suggest). Moreover, family life matters at least as much -- perhaps even more -- for individual life satisfaction in rich countries, as compared to poor countries (in contrast to Figure 2.8, which shows the importance of family life declining as countries become wealthier).

Why, then, does the Comparative Liveability Index use the weights it does? In short, the Index weights are based on the variability of indicators between nations, not between individuals. In rich countries, people's family lives are, on average, relatively good. In developing countries, by contrast, family life indicators are hugely variable. For instance, the Gallup World Poll finds that only 59% of Bangladeshis say they have someone to rely on in times of trouble, compared to 95% of Venezuelans. In wealthy European countries, by contrast, there is little variation: the figure is uniformly above 90%.

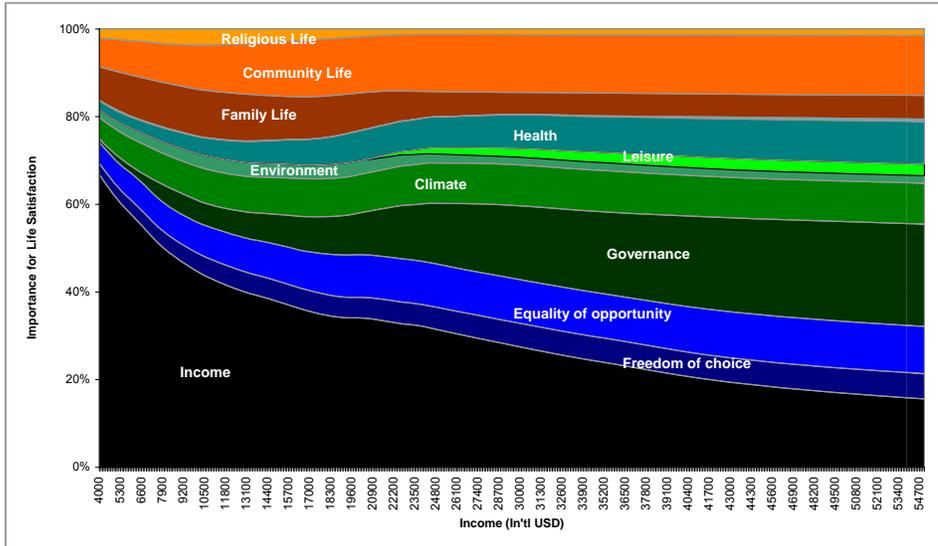
This suggests that when Western European policymakers, and Western European voters, consider the comparative liveability of their country -- the liveability of their country as compared to other rich countries -- the quality of family life is not such an important differentiating factor. In countries at such high levels of income, the quality of family life does not appear to be powerfully influenced by factors that vary at the national level. By contrast, in poorer countries, national differences appear to have a large impact on family life. For instance, it appears that some kinds of national differences -- perhaps differences in law, culture, migration patterns, or economic conditions -- leave nearly eight times as many Bangladeshis as Venezuelans without someone to rely on.

It is important to note that foundational social capital factors such as family, friends, faith, and health, all of which are strong determinants of human happiness, are generated and experienced by individuals, not entire countries. In other words, it is individual people who are happy, not nations. However, since the Prosperity Index assesses prosperity at the national level, it uses national averages of these social capital indicators. While these national averages can reveal interesting comparisons between countries, they do not address the relative salience of social capital factors within countries. Substantial research has demonstrated that for populations within wealthier nations, factors such as family life, friendship, religious engagement, and health are much stronger determinants of individual happiness than income.

There remains a great deal that is unknown about Comparative Liveability, because it is a new field of study. Some of the subjective social indicators in the Index may prove to be difficult to move via policy changes -- it may well be easier to double incomes in an already-rich country than it is to increase people's satisfaction with air quality by one percent. Conversely, some subjective social indicators may well be so important to individuals that, even though there is little variance in these indicators between countries, these will come to be seen as the most crucial policy targets. These kinds of distinctions await further research.

Policymakers and citizens should take the weights presented in this year's Prosperity Index weights as an initial assessment of countries' Comparative Liveability, and expect that this will be enhanced in years to come.

**FIGURE 2.7. WEIGHTS FOR THE LIVEABILITY INDEX FACTORS AS ASSIGNED BY LOWESS REGRESSION, WITH INCOME INCLUDED**



Widths of bands represent percentage weights as components of a total Comparative Liveability Index score. The four main categories in the Index are Freedom and Opportunity (shown in shades of blue, remaining roughly constant in weight), Environment for Wellbeing (shown in shades of green, rising in weight as countries become wealthier), Sources of Misery (with income falling in weight and health rising in weight), and Social Supports (shown in shades of orange, declining somewhat as countries become wealthier). Comparative Liveability Index weights are reflected by Figure 2.7, which includes income.

The factors included in the Comparative Liveability Index, along with their approximate weights in the Index, are reviewed below.

#### FOSTERS FREEDOM AND OPPORTUNITY

##### *Freedom of choice*

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Average response to the question “In your country, are you satisfied or dissatisfied with your freedom to choose what you do with your life?”	Gallup World Poll	1% at the lower end of the income scale rising to 5% at the upper end

Freedom of choice is an issue little studied thus far in the literature on subjective wellbeing, although the link between choice and wellbeing has been long studied in other disciplines. The research that does exist suggests a strong, significant empirical link between perceived freedom of choice and wellbeing.<sup>56</sup> For a full discussion, see Chapter 5: Freedom and Happiness.

The Prosperity Index uses a binary survey question that assesses the satisfaction of individuals with the freedom of choice they experience. Satisfaction with freedom of choice proves increasingly important in explaining differences in liveability among wealthier countries.

### *Equality of opportunity*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Percentage of parliamentary seats held by women (quota-adjusted)	UN Human Development Report	0.3% at the lower end of the income scale rising to 3% at the upper end
Ratio of female to male earnings	UN Human Development Report	0% at the lower end of the income scale rising to 4% at the upper end
Average answers to the response, "Can people in this country get ahead by working hard, or not?"	Gallup World Poll	0.5% at the lower end of the income scale rising to 4% at the upper end
Net migration rate per thousand inhabitants	UN	Approaching 2% in the middle of the income scale and falling at either end

As with freedom of choice, there is so far little research regarding the effects of equality of opportunity on subjective wellbeing. Research for the Prosperity Index suggests that people's perceptions of the level of meritocracy in their societies are a contributing factor to subjective wellbeing across the income scale.

Other equal opportunity factors in the Index are the quota-adjusted proportion of women in parliament, which reflects the political representation of historically disadvantaged groups, and the ratio of female to male earnings as a proxy for equality of opportunity achieved in the labour market. Statistical tests suggest that these gender-based indicators of equality correlate not only with higher average life satisfaction for women, but also for the population as a whole.

The Index also includes net migration rates, which should reveal the relative preferences of individuals for the opportunities afforded by different societies and economies -- among other factors.

### CREATES AN ENVIRONMENT FOR WELLBEING

#### *Good governance*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Control of corruption	World Bank Governance Indicators	0.3% at the lower end of the income scale rising to 5% at the upper end
Voice and accountability (political rights and civil liberties)	World Bank Governance Indicators	0.3% at the lower end of the income scale rising to 6% at the upper end
Government effectiveness	World Bank Governance Indicators	0.3% at the lower end of the income scale rising to 6% at the upper end

Recent research identifies a positive correlation between democracy and subjective wellbeing, even after controlling for the effects of democracy on institutional quality. This

positive relationship appears to reflect the benefits of political participation.<sup>57</sup> There may also be a virtuous cycle: it is possible that high levels of average life satisfaction among citizens boost the legitimacy of a country's political regime and that this promotes democratic institutions.<sup>58</sup>

More broadly, better government appears to increase average life satisfaction. This relationship likely reflects the impact of improved quality of public services, such as physical security, urban planning, and the justice system, as well as control of corruption and the independence of the civil service from political pressures in general.

The relative importance of different aspects of good government appears to be related to the level of development, a point that is reflected in the Prosperity Index. For example, the extent to which a country's citizens are able to participate in selecting their government, as well as their freedom of expression and freedom of association, (reflected by the voice and accountability indicator) appear more important in explaining differences in liveability among rich countries.<sup>59</sup>

*Pleasant environment*

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Natural log of ecosystem services product per capita	Source: Costanza et al., 1997	0.2% at the lower end of the income scale rising to 1% at the upper end
Average response to the question, "In the city or area where you live, are you satisfied or dissatisfied with the quality of air?"	Gallup World Poll	0.5% at the lower end of the income scale rising to 4% at the upper end
Average response to the question, "In your country, are you satisfied or dissatisfied with efforts to preserve the environment?"	Gallup World Poll	0.4% at the lower end of the income scale rising to 3% at the upper end

Research on the link between environmental factors and subjective wellbeing is relatively new. Survey measures of environmental quality and concern appear to show a significant relationship with wellbeing.<sup>60</sup> There is also more tentative evidence linking objective measures of the environment, such as air and water pollution, to life satisfaction.

The Prosperity Index, in a similar vein, includes two subjective indicators -- satisfaction with efforts on environmental preservation and satisfaction with air quality -- that are strong, significant correlations with average national wellbeing. There is a less strong but still significant correlation for the objective indicator in the Index, ecosystem services per capita, which is a measure of the extent and value of natural land area in a country, such as lakes, rivers, wetlands, forests and grasslands.

### *Moderate climate*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Average temperature in the coldest month of the year, weighted by population	Temperature Data from the Climate Research Unit CL 2.0 database, weighted using the Gridded Population of the World v3 database	5% at the lower end of the income scale falling to 0% at the upper end
Average temperature in the warmest month of the year, weighted by population	Temperature Data from the Climate Research Unit CL 2.0 database, weighted using the Gridded Population of the World v3 database	0% at the lower end of the income scale rising to 3% at the upper end

Effects of climate on wellbeing are thus far little studied, but research suggests that extremes of temperature have a negative impact on life satisfaction.<sup>61</sup> The Prosperity Index finds a similar relationship. Extremely cold average temperatures appear to be associated with large decreases in life satisfaction in poorer countries. This may be because individuals in poorer countries lack the means to obtain adequate shelter and heating.<sup>62</sup>

### *Time for leisure*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Average working hours per week in manufacturing	OECD	0% at the lower end of the income scale rising to 3% at the upper end
Average response to the question, "Approximately how many hours of your time yesterday was free time, where you could do what you wanted to do?"	Gallup World Poll	0% at the lower end of the income scale rising to 2% at the upper end

Research suggests that leisure time and subjective wellbeing are positively correlated.<sup>63</sup> At the same time, there is evidence that satisfaction with work has a positive effect, and there is robust proof of drastic negative effects of unemployment.

Hence, it appears that viewing leisure as enjoyable, and work as unpleasant, would be overly simplistic. Studies on wellbeing data suggest that individuals enjoy working, but not being 'overtaxed'.<sup>64</sup> Research that attempts to proxy work-life balance with a number of questions finds that insufficient time for social contacts is the most prevalent complaint related to a lack of leisure. However, at lower standards of living, material concerns prevail in the domain of job satisfaction, and work-life balance is less of an issue.<sup>65</sup>

In line with this research, the Prosperity Index finds leisure time to be only of significance for liveability differences among high-income countries (with a per capita income of about 20,000 USD or more).

## ALLEVIATES SOURCES OF MISERY

### *High incomes*

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Log of GDP per capita, measured in 2000 \$US PPP	World Development Indicators, supplemented by IMF data for Taiwan	60% at the lower end of the income scale falling to 19% at the upper end

Economic theory assumes that higher income leads to higher wellbeing via an expanded opportunity set and increased utility. In his seminal paper, Richard Easterlin challenged this conventional view with a puzzle: while average income rose seven-fold in Japan over the 1950s and 1960s, Japanese citizens did not seem any happier in 1970 than they were in 1950.

His observation is not unique to Japan, with a similar trend noticeable in the United States and United Kingdom. Easterlin's conclusion that economic growth does not necessarily lead to more life satisfaction is known as the 'Easterlin Paradox'.<sup>66</sup>

There are several potential explanations for this paradox. The most popular is that individuals are concerned with their relative income position, and therefore, seeing others become relatively richer makes people unhappy. In that case, rising incomes (and particularly, rising inequality) in a country might be distressing.

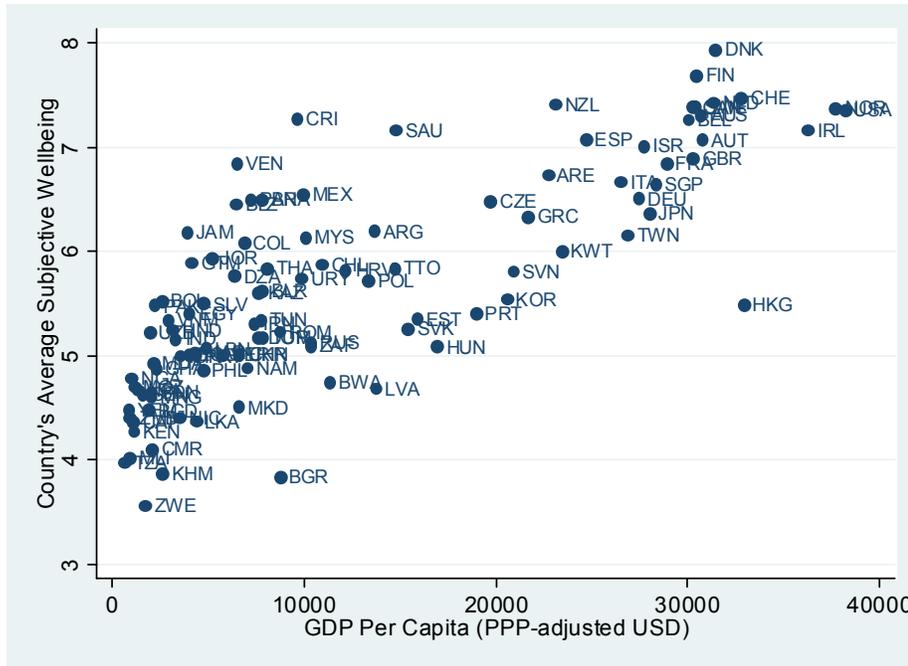
There have been attempts to measure both absolute income effects (does more income increase a person's life satisfaction?) and relative income effects (how does the increasing income of a person's neighbours affect their life satisfaction?) at the same time. Some studies have found that the impacts are directly opposite, and are of almost equal size, but these findings are controversial.<sup>67</sup>

Another way to explain the Easterlin Paradox might be that other determinants of individual wellbeing (such as family or community life) have worsened in industrialised societies, which might (partially) offset the beneficial effects of rising income.

More recently, new data, particularly from the Gallup World Poll, has cast doubt on whether or not the paradox actually exists. Based on polling data covering 95% of the world's population, there seems to be no evidence of a satiation point beyond which income ceases to affect life satisfaction.<sup>68</sup> Time-series evidence, however, remains fragile.

In line with this new data, Prosperity Index research finds the positive relationship between income and subjective wellbeing to hold throughout the income scale. Nonetheless, the prevailing interpretation of Easterlin's findings appears to retain some validity: when the relationship between income and life satisfaction is presented in logarithmic form, non-income factors in richer countries -- such as health, community life, freedom of choice, and family life -- appear to have a much larger cumulative impact on comparative liveability than income.

Hence, in the Prosperity Index, income's effect on liveability declines with increased levels of wealth.



This graph shows all Prosperity Index countries, with their per capita income plotted against national averages of subjective wellbeing. Even for countries above \$25,000 in per-capita income, the link between income and subjective wellbeing appears to hold.

### Good health

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Average life expectancy, adjusted for health	WHO	0.2% at the lower end of the income scale rising to 9% at the upper end
Average response to the question, "Are you satisfied or dissatisfied with your personal health?"	Gallup World Poll	0.6% at the lower end of the income scale rising to 6% at the upper end

An obvious source of misery is bad health. Unsurprisingly, empirical studies find a strong, significant correlation between self-reported health and self-reported life satisfaction. Household level analysis commonly shows subjective health to be among the most important determinants of life satisfaction, and more important even than income.

The observed correlation between objective health (such as health ratings by physicians or life expectancy) and life satisfaction is much smaller. Some research finds, for instance, that the frequency of HIV infections has little impact on health satisfaction levels in Africa. This discrepancy between subjective and objective health measures may reflect personality differences, as well as psychological coping mechanisms (though adaptation to grave health problems as caused, for example, by an accident appears not to be complete).<sup>69</sup> Alternatively, subjective measures of health and of wellbeing may have a spuriously high positive correlation because both are driven by inherent aspects of personality, especially optimism.

The Prosperity Index employs both a subjective health rating and an objective measure of health, health-adjusted life expectancy. Health-adjusted life expectancy reflects the average

number of years that a person can expect to live in 'full health', by taking into account years lived in less than full health due to disease or injury.<sup>70</sup> Controlling for per capita income, both indicators show a significant, positive relationship with average national wellbeing.

Interestingly, we find health-adjusted life expectancy to become relatively more important for the liveability of countries with a per capita income of 20,000 USD and more. The reasons for this finding could relate to a high value attached to a healthy and long life in rich countries, but could equally relate to poor data quality for developing economies.

#### *Low unemployment*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Natural log of 1 plus the employment rate	ILO, supplemented by data from the CIA World Factbook	0% at the lower end of the income scale rising to 0.2% at the upper end

Numerous studies have confirmed severe negative effects of personal unemployment on subjective wellbeing. Moreover, survey data that track individuals over time shows that dissatisfaction follows unemployment, and not vice versa. These data also show that individuals who find new employment then experience a subsequent increase in life satisfaction.

Unemployment's impact on individual life satisfaction differs depending on the country (which may reflect differences in labour market flexibility and/or welfare benefits). There is also evidence that habituation effects cushion the negative effect of unemployment (people become used to unemployment). In the extreme case this can lead to indifference vis-à-vis personal employment status.<sup>71</sup>

At the macro level, the relationship between unemployment and life satisfaction is more difficult to assess. Unemployment rates often seem to have no impact in poor countries, presumably because they do not reflect the reality of economies characterised by large informal sectors. An alternative explanation posits that social disapproval plays a large role in the negative wellbeing effects of unemployment rates. In this case, very high unemployment rates perversely may have a positive effect on average wellbeing.<sup>72</sup>

We find no significant relationship between unemployment and average national wellbeing in our statistical tests. Beyond poor data quality or the reasons set out above, this could be because unemployment is cyclical and wellbeing is not; or because unemployment is a minority condition. Our use of a more reflective wellbeing measure, life satisfaction, instead of a mainly affective measure such as happiness, may also explain our insignificant results.

Nonetheless, we have included the unemployment rate in the Prosperity Index, because the evidence of the negative wellbeing impacts of unemployment is so powerful at the individual level. However, as a result of our statistical approach to index construction, the weight attached to this factor is extremely low.

## BUILDS SOCIAL SUPPORTS

### *Family life*

<b>Indicator</b>	<b>Source</b>	<b>Approximate Weight (% of Comparative Liveability Score)</b>
Percentage of the population reporting marital status: divorced	Gallup World Poll	4% at the lower end of the income scale falling to 0% at the upper end
Percentage of the population reporting marital status: widowed	Gallup World Poll	3% at the lower end of the income scale falling to 0% at the upper end
Average response to the question, "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"	Gallup World Poll	0.2% at the lower end of the income scale rising to 5% at the upper end

The family is an important determinant of subjective wellbeing, as well as an essential domain for the accumulation of social capital. Household level analysis has demonstrated the negative impacts of divorce and widowhood on subjective wellbeing in numerous studies (controlling for income and demographic characteristics). Moreover, research based on time-series data confirms that the causation is not reverse, since the associated lower life satisfaction follows -- not precedes -- these life events.<sup>73</sup>

The Prosperity Index includes two proxies of family life on a macro level: divorce rates and the share of population in widowhood. Employing an income control, both variables show a significant negative correlation with average levels of wellbeing, as suggested by other research.

A third Prosperity Index indicator attempts to capture the social capital aspect of family life. In comparison with the other two indicators, 'having someone to rely on' shows a larger impact on differences in liveability amongst rich countries (per capita income of 20,000 USD and above). This binary survey question item makes no explicit reference to the family, but is grouped under the family life sub-heading on the assumption that family is the core of social support.

## Community life

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Average response to the question, "Generally, do you feel that other people can be trusted?"	World Values Survey	0.2% at the lower end of the income scale rising to 2% at the upper end
Percentage of respondents involved (actively or inactively) in a community group or organisation	World Values Survey	0.4% at the lower end of the income scale rising to 3% at the upper end
Average response to the question, "Have you done any of the following in the past month? How about volunteered your time to an organisation?"	Gallup World Poll	0.3% at the lower end of the income scale rising to 2% at the upper end
Average response to the question, "Have you done any of the following in the past month? How about donated money to a charity?"	Gallup World Poll	0.6% at the lower end of the income scale rising to 5% at the upper end

Many researchers, referring to the norms and networks that facilitate society's collaboration, use the term 'social capital' to reflect, for instance, the number and vibrancy of civic organisations such as neighbourhood associations, churches and labour unions. Some researchers also include 'social trust' -- the degree of trust that people have in other members of society -- as part of 'social capital'. However, the most common view is that having abundant social capital creates strong social trust.

Early studies of social capital mainly focussed on the frequency and depth of interactions at the community level. Several surveys have measured memberships in different types of community organisation, such as churches, clubs, and labour unions. These memberships have been found, at the individual level, to increase social trust, and also to have additional direct links to life satisfaction.

Across countries there are fewer studies, but those conducted find a significant link between social capital at the community level and average national life satisfaction. Indeed, this seems to be true for the individual effects of participation and positive social trust -- in other words, community social capital seems to have positive externalities, making everyone more satisfied, not just those participating in these organisations.<sup>74</sup> Recent research proposes that declining social capital accounts for the lack of a positive trend in wellbeing statistics over the past 30 years in the United States, despite rising incomes.<sup>75</sup>

The Prosperity Index includes four indicators of social capital and civic engagement: social trust, volunteering, involvement in social organisations and charitable giving. All social capital factors are associated with an increase in subjective wellbeing, which is larger for countries with higher per capita incomes. These findings are broadly in line with other research.<sup>76</sup>

## Religious life

Indicator	Source	Approximate Weight (% of Comparative Liveability Score)
Percentage of respondents answering "Very Important" to the question "How important is God in your life?"	World Values Survey	5% at the lower end of the income scale falling to 0% at the upper end
Government Regulation of Religion Index	Grim and Finke (2006), via the Association of Religion Data Archive	0.2% at the lower end of the income scale rising to 2% at the upper end

Research suggests that high levels of faith — defined as one's perception of the importance of God in one's life (or respective figure or figures central to the faith) -- are associated with higher levels of life satisfaction. This is net of social capital effects resulting from church attendance and other faith community-related activities.

Overall, however, it remains contested whether 'believing' (that is, having faith) or 'belonging' (that is, being in a faith community) plays the decisive role for above-average wellbeing levels among religious segments of a population. Some evidence suggests moreover that religious individuals have more stable life satisfaction levels -- that is, they have a higher indifference to income changes, personal unemployment, and political and economic uncertainty.<sup>77</sup>

The negative impacts of religious intolerance or extremism must also be taken into account. The Prosperity Index does so with another indicator, religious freedom, which also correlates with average national life satisfaction. Countries with high levels of religious faith score well on the Religious Life indicator in the Index, but they achieve top marks only if they have religious freedom as well. The religious freedom indicator measures the extent of freedom from government regulation in the religious domain.

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<sup>17</sup> The dependent variables of economic growth and life satisfaction are operationalised as long-term growth in per capita income on the Competitiveness side of the Index, and average levels of life satisfaction on the Liveability side of the Index.

<sup>18</sup> Weighting the Competitiveness and Liveability indices equally appears the most comprehensible and hence transparent approach, given there is no empirical foundation for any weighting between the two sides of the Prosperity Index.

<sup>19</sup> The term 'liveability' was suggested to us by Ruut Veenhoven, although our use of the term may cover a different set of issues than he intended. See Veenhoven, Ruut (2006). "The Four Qualities of Life : Ordering Concepts and Measures of the Good Life ". Chapter 4 (pp 74-101) in Mark McGillivray and Matthew Clarke, eds., *Understanding Human Wellbeing*. New York: United Nations University Press.

<sup>20</sup> Further details can be found in the separate technical appendix, available by request.

<sup>21</sup> Readers will notice a negative slope at the right side of the graph. This could be because highly effective (i.e., rich country) governments tend to pursue non-economic (i.e., wellbeing) objectives. Another possibility is that this reflects inherently lower rates of economic growth in rich countries (although the regression controls for this with a convergence term). Note that, in

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any event, this result is not reflected in the Prosperity Index, in which the weight of governance varies with income, not with governance (see Figure 2.3).

<sup>22</sup> However, there are limits in the accuracy with which the Prosperity Index can be used to assess these tradeoffs, due to two statistical problems known as ‘omitted variable bias’ and ‘endogeneity’ that are inherent to the approach used to develop the Index. As a result, we cannot make an accurate measurement of policy impacts (e.g., raising incomes in Norway by 3% will increase wellbeing by 2%). This is an area for future research. For the time being, the tradeoffs indicated in the Index results are suggestive.

<sup>23</sup> The Global Competitiveness Index also differentiates between factor-driven, efficiency-driven and innovation-driven countries depending on their stage of economic development. Lopez-Claros, Augusto, Michael E. Porter and Klaus Schwab. 2005. *The Global Competitiveness Report 2005-2006*. The World Economic Forum: 25.

<sup>24</sup> For a survey of growth literature, see: Barro, Robert and Xavier Sala-i-Martin. 2003. *Economic Growth*, 2nd Ed. Cambridge, MA: The MIT Press.

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<sup>26</sup> Romer, Paul M. 1986. “Increasing Returns and Long-Run Growth”. *The Journal of Political Economy* 94, no. 5: 1002-1037.

<sup>27</sup> Aghion, Phillipe and Peter Howitt. 1992. “A Model of Growth Through Creative Destruction”. *Econometrica* 60, no. 2: 323-351; and

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<sup>28</sup> See, for instance: Easterly, William. 2001. *The Elusive Quest for Growth: Economists’ Adventures and Misadventures in the Tropics*. Cambridge, MA: The MIT Press.

<sup>29</sup> Please refer to the separate technical appendix, available on request, for further details on the use of specific datasets for specific indicators, time periods, data sources etc.

<sup>30</sup> See: Mankiw, N. Gregory, David Romer and David N. Weil. 1992. “A Contribution to the Empirics of Economic Growth”. *The Quarterly Journal of Economics* 107, no. 2: 407-437;

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<sup>31</sup> De Long, J. Bradford and Lawrence H. Summers. 1991. "Equipment Investment and Economic Growth". *The Quarterly Journal of Economics* 106, no. 2: 445-502.

<sup>32</sup> Rodrik, Dani, Arvind Subramanian and Francesco Trebbi. 2004. "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development". *Journal of Economic Growth* 9, no. 2: 131-165.

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<sup>33</sup> Jalilian, Hossein, Colin Kirkpatrick and David Parker. 2007. "The Impact of Regulation on Economic Growth in Developing Countries: A Cross-Country Analysis". *World Development* 35, no. 1: 87-103.

<sup>34</sup> See Kaufmann, Daniel and Aart Kraay. 2002. "Growth Without Governance". *Economia* 3, no. 2: 169-229.

<sup>35</sup> The specific indicators that underlie these governance measures may be found at <http://www.govindicators.org>.

<sup>36</sup> Jones, Charles. 1994. "Economic Growth and the Relative Price of Capital". *Journal of Monetary Economics* 34: 359-382;

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<sup>38</sup> Engel, Charles and John H. Rogers. 2001. "Deviations from Purchasing Power Parity: Causes and Welfare Costs". *Journal of International Economics* 55: 29-57; and

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<sup>51</sup> Beck, Thorsten, Asli Demiguc-Kunt and Ross Levine. 2005. "SMEs, Growth, and Poverty: Cross-Country Evidence". *Journal of Economic Growth* 10, no. 3: 199-229; and

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<sup>53</sup> Sokoloff, Kenneth L. and Stanley L. Engerman. 2000. "History Lessons: Institutions, Factor Endowments, and Paths of Development in the New World". *The Journal of Economic Perspectives* 14, no. 3: 217-232.

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<sup>54</sup> Sachs, Jeffrey D. and Andrew M. Warner. 1995; revised 1997, 1999. "Natural Resource Abundance and Economic Growth". *NBER Working Paper* no. 5398. Cambridge: National Bureau of Economic Research;

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## 3. Special Topics: Entrepreneurship and Economic Growth

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### 3.1 Introduction

With the 2000 Lisbon Proclamation, Romano Prodi, who was at the time serving as President of the European Commission, committed Europe to becoming the leader of entrepreneurship in the world in order to ensure prosperity and a high standard of living throughout the continent. In particular, Prodi proclaimed that the promotion of entrepreneurship was a central cornerstone of European economic growth policy:

*“Our lacunae in the field of entrepreneurship needs to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy”.*<sup>78</sup>

Romano Prodi and the European Union were not alone in turning to entrepreneurship to provide the engine of economic growth. The entrepreneurial policy mandate mirrored similar efforts throughout the developed world. Public policy spanning a broad spectrum of national, regional and local contexts was turning to entrepreneurship to replace old jobs which were being lost to outsourcing and globalisation, while at the same time to harness the potential that remained largely dormant from significant long-term investments in knowledge, such as universities, education and research institutions.

Only a few years earlier the policy debate focusing on growth and employment had looked to the macroeconomic instruments of fiscal and monetary policy on the one hand, and the size and scale economies yielded by the large corporation on the other. After all, scholars such as Alfred Chandler, Joseph Schumpeter and John Kenneth Galbraith had convinced a generation of policy makers that efficiency and growth lay in the domain of large corporations and that small business would simply fade away under the weight of its own inefficiency. To many experts, their analyses seemed to be even more relevant with the emergence of globalisation, where scale and scope were assumed to be a pre-requisite for competitiveness and sustainability in the era of globalisation.

The purpose of this article is to explain why, in fact, entrepreneurship has emerged as an important source of economic growth, employment and competitiveness. Even as Europe and North America are losing the comparative advantage for economic activity based on physical capital, which includes many manufacturing industries, the high-cost countries of Europe and North America are turning towards knowledge-based economic activity as a strategy to generate growth, employment and competitiveness in a globalised economy. However, as this article will explain, investments in knowledge may not suffice in generating economic growth. Rather, entrepreneurship provides an important mechanism that actually transforms investments in knowledge, ideas and creativity, into innovative activity and ultimately economic growth. The emergence of entrepreneurship policy as a key component to fostering economic growth has resulted in a rethinking of institutions and policies in an effort to create an entrepreneurial society.

### 3.2 Economic Growth: The Traditional View

Economic growth has been a major preoccupation of economists, dating back at least to Adam Smith. William Stanley Jevons, for example, posited a growth theory based on the activity of sunspots. Robert Solow took a less exotic approach to explaining economic growth. Writing in the post-war era, Solow was awarded the Nobel Prize for his model of economic growth based on what became termed as the neoclassical production function. In the Solow model two key factors of production -- physical capital and skilled and unskilled labour were econometrically linked to explain economic growth. Solow did acknowledge that technical

change contributed to economic growth, but in terms of his formal model, it was considered to be an unexplained residual, which 'falls like manna from heaven'.

Solow's path-breaking research inspired a subsequent generation of economists to rely upon the model of the production function as a basis for explaining the determinants of economic growth. This approach generally consisted of relating various measures representing these two fundamental factors of production, physical capital and unskilled labour, in trying to explain variations in growth rates, typically over time in a single country or across countries in a cross-sectional context.

Growth policy, or economic policy for growth, if not shaped by the Solow theoretical growth model, certainly corresponded to the view that inducing investments in physical capital in particular was the key to generating economic growth and advances in worker productivity. Both the economics literature and the corresponding public policy discourse was decidedly focussed on which instruments, such as monetary policy versus fiscal policy, or interest rates versus capital depreciation allowances, were best suited to induce investment in physical capital and ultimately promote growth. While these debates may never have been satisfactorily resolved, their tenacity reflects the deep-seated belief about the primacy of capital investment as the fundamental source of economic growth.

While economic growth policy seemingly fell squarely within the domain of macroeconomics, the primacy of capital as a factor of production had implications at the microeconomic level for the organisation of both the enterprise and the industry or market. There were both theoretical arguments and empirical verification suggesting that the organisation of economic activity to efficiently utilise the factor of physical capital might, in fact, not be consistent with the assumptions needed for perfect competition, and therefore economic welfare. In particular, capital seemed to be deployed most efficiently in large organisations capable of exhausting significant economies of scale, resulting in a concentrated industry or market, consisting of just a few main producers. The emergence and ascendancy of the applied field of industrial organisation in economics reflected the importance of this concern.

During the post-war period a generation of scholars galvanised the field of industrial organisation by developing a research agenda dedicated to identifying the issues involving this perceived trade-off between economic efficiency on the one hand and political and economic decentralisation on the other.<sup>79</sup> Scholarship in the field of industrial organisation generated a massive literature focusing on essentially three issues: (i) What are the gains to size and large-scale production? (ii) What are the economic welfare implications of having an oligopolistic or concentrated market structure, i.e. is economic performance promoted or reduced in an industry with just a handful of large-scale firms? and (iii) Given the overwhelming evidence that large-scale production resulting in economic concentration is associated with increased efficiency, what are the public policy implications?

A generation of scholars had arduously and systematically documented painstaking empirical evidence that supported the conclusion of Joseph A. Schumpeter, "What we have got to accept is that the large-scale establishment or unit of control has come to be the most powerful engine of progress and in particular of the long-run expansion of output..."<sup>80</sup> John Kenneth Galbraith provided a post-war interpretation, "There is no more pleasant fiction than that technological change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbour".<sup>81</sup>

The pervasive fear of the Soviet Union that emerged as the Cold War succeeded the Second World War went beyond concerns about military competition and the space race. Many in the West worried that the launching of Sputnik demonstrated the superior organisation of Soviet industry. Facilitated by centralised planning, the Soviet economy apparently generated rates of growth higher than those of western economies, threatening, ultimately, to "bury" (as Soviet Premier Nikita Khrushchev famously put it) the free market competition. After all, the nations of Eastern Europe, and the Soviet Union in particular, had a 'luxury' inherent in their systems of centralised planning -- a concentration of economic assets on a scale beyond anything imaginable in the West, where the commitment to democracy seemingly imposed a concomitant commitment to economic decentralisation.

Western economists and policy-makers of the day were nearly unanimous in their acclaim for large-scale enterprises. It is no doubt an irony of history that this consensus mirrored a remarkably similar gigantism embedded in Soviet doctrine, fuelled by the writings of Marx and

ultimately implemented by the iron fist of Stalin. This was the era of mass production when economies of scale seemed to be the decisive factor in determining efficiency. This was the world so colourfully described by John Kenneth Galbraith in his theory of countervailing power, in which big business was held in check by big labour and by big government. This was the era of the man in the grey flannel suit<sup>82</sup> and the organisation man,<sup>83</sup> when virtually every major social and economic institution acted to reinforce the stability and predictability needed for mass production.<sup>84</sup>

With a decided focus on the role of large corporations, oligopoly and economic concentration, the literature on industrial organisation yielded a number of key insights concerning the efficiency and impact on economic performance associated with new and small firms:

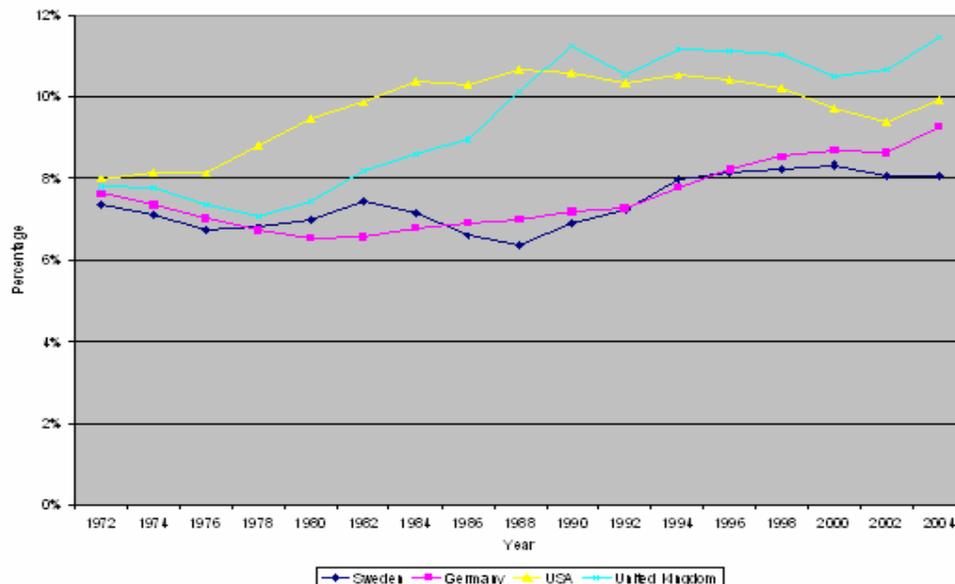
Small firms were generally less efficient than their larger counterparts. Studies from the U.S. in the 1960s and 1970 revealed that small firms produced at lower levels of efficiency, leading Weiss to conclude that, "On the average, about half of total shipments in the industries covered are from suboptimal plants. The majority of plants in most industries are suboptimal in scale, and a very large percentage of output is from suboptimal plants".<sup>85</sup> Pratten found similar evidence for the United Kingdom, where suboptimal scale establishments accounted for 47.9 percent of industry shipments.

Small firms provided lower levels of employee compensation. Empirical evidence from both North America and Europe found a systematic and positive relationship between employee compensation and firm size.<sup>86</sup>

Small firms were only marginally involved in innovative activity. Based on R&D measures, SMEs accounted for only a small amount of innovative activity. The relative importance of small firms was declining over time in both North America and Europe. A clear trend was identified towards an increased share of economic activity accounted for by the largest corporations while small firms were losing importance in the economy.<sup>87</sup>

Thus, in the post-war era, small firms and entrepreneurship were viewed as a luxury, perhaps needed by the West to ensure a decentralisation of decision making, but in any case obtained only at a cost to efficiency. As shown in Figure 3.1, most countries, for example, had smaller percentages of entrepreneurship in the national workforce in the 1970s and 1980s than in the 1990s and 2000s. For example, in 1972, eight percent of the national workforce in the U.S. consisted of entrepreneurs, compared to ten percent of the national workforce in 2004.

**FIGURE 3.1: RATE OF ENTREPRENEURSHIP IN SELECTED COUNTRIES, 1972 TO 2004**



Source: Roy Thurik, "Determinants of entrepreneurial engagement levels in Europe and the US"

Certainly the systematic empirical evidence, gathered from the United States documented a sharp trend towards a decreased role of small firms during the post-war period. Even advocates of small business agreed that small firms were less efficient than big companies. Public policy toward small firms generally reflected the view of economists and other scholars. Some countries, such as the Soviet Union, Sweden and France, adopted the policy of allowing small firms to gradually disappear and account for a smaller share of economic activity.<sup>88</sup>

U.S. public policy, on the other hand, reflected the long-term political and social valuation of small firms that seemed to reach back to the Jeffersonian traditions of the country. After all, in the 1890 debate in Congress, Senator Sherman vowed, "If we will not endure a King as a political power we should not endure a King over the production, transportation, and sale of the necessaries of life. If we would not submit to an emperor we should not submit to an autocrat of trade with power to prevent competition and to fix the price of any commodity".<sup>89</sup>

Thus, public policy toward small business in the United States was oriented towards preserving what were considered to be inefficient enterprises, which, if left unprotected, might otherwise become extinct. An example of such preservationist policies towards small business was provided by enactment and enforcement of the Robinson-Patman Act. Even advocates of small business agreed that small firms were less efficient than big companies. These advocates were willing to sacrifice a modicum of efficiency, however, because of other contributions -- moral, political, and otherwise -- made by small business to society.<sup>90</sup> Small business policy was thus 'preservationist' in character.

The same political rationale was clearly at work with the creation of the U.S. Small Business Administration. In the Small Business Act of July 10, 1953, Congress authorised the creation of the Small Business Administration, with an explicit mandate to "aid, counsel, assist and protect...the interests of small business concerns".<sup>91</sup> The Small Business Act was an attempt by the Congress to halt the continued disappearance of small businesses and to preserve their role in the US economy.

### 3.3 Globalisation and the Role of Knowledge

When the Berlin Wall fell in November 1989, most scholars, as well as policy makers, anticipated what was expressed as a peace dividend for Europe in terms of economic growth. After all, the post-war recovery of Europe, and especially particular countries such as Germany and Sweden, had been based on wresting the comparative advantage from the United States in key capital-based industries, such as automobiles, steel, and machine tools. Economic growth, employment and competitiveness throughout the post-war era had been driven by physical capital. Just as Robert Solow was awarded a Nobel Prize for identifying physical capital as the main factor driving economic growth that could be identified, it was surely no coincidence that decades earlier Karl Marx had titled his history changing book *Das Kapital*. If Europe could export automobiles, steel and tires to the United States, the prospects for dominance in export markets to the newly accessible countries in Central and Eastern Europe, as well as those in Asia, such as China.

Thus, it came as something of a shock when it became clear that, rather than reinforce the post-war European comparative advantage in capital-goods industries, the post-Berlin Wall globalisation triggered a loss in European competitiveness in its stalwart traditional manufacturing industries.

Driven by the harsh logic of globalisation, new, European companies were increasingly choosing to outsource and offshore in a desperate effort to remain competitive. While this might have preserved, or even enhanced, the competitiveness of some European companies, it eroded the levels of economic growth throughout Europe and triggered increases in unemployment that ratcheted upwards throughout the decade of the 1990s.

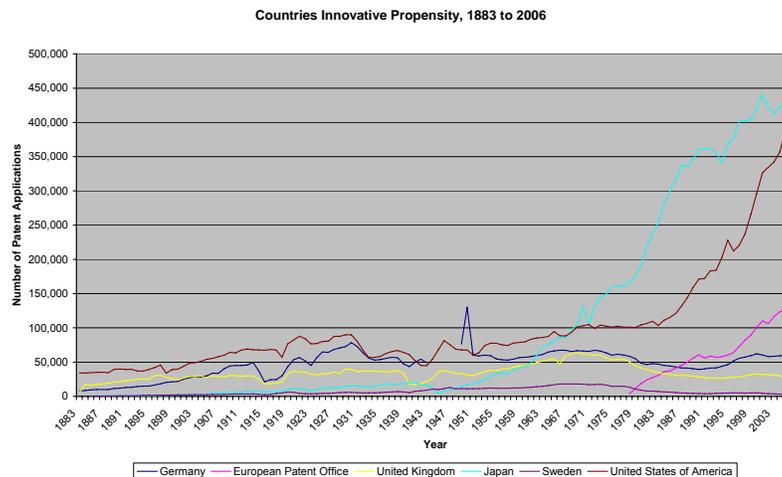
As an article entitled, "Germany: World Leading Exporter (of Jobs)", in the most prestigious weekly German magazine, *Der Spiegel*, reports, "employment in manufacturing rose throughout the era of the post-war managed economy, increasing from 12.5 million in 1970 to

14.1 million in 1991; then, as globalisation hit Germany, manufacturing jobs crashed to 10.2 million in 2004.<sup>92</sup> Between 1991 and 2004, the number of jobs in the German textile industry fell by 65 percent, from 274,658 to 94,432. In the construction industry, there was a 58 percent decrease in employment in Germany, from 1.9 million jobs to 778,000. In the metalworking industries, employment decreased from 576,299 to 250,024, or 47.5 percent. And in the heart and soul of German manufacturing, the machine tool industry, the number of jobs fell from 1.6 million to 947,448, or 39.1 percent.

Both outsourcing and offshoring have emerged as a strategic response to global competition, helping businesses maintain and, sometimes, enhance profitability. In Germany, this phenomenon has brought on a seemingly schizophrenic euphoria. On the one hand, corporate executives and policy makers are celebrating a 'champagne mood', as profits are rising to record levels, sales increasing, as the overall prospects for Germany corporations improve to better than they have been in years.<sup>93</sup> On the other hand, unemployment remains perilously below five million unemployed workers. As one of the most influential daily German newspapers, *Die Welt*, warned Germany's chancellor, Angela Merkel, "What use is the new strength and optimism of German companies if nothing is changed in the labour market".<sup>94</sup>

Even as the comparative advantage in (physical) capital in Europe was beginning to fade, scholars and policy makers began to recognise the primacy of a very different factor of production -- knowledge capital, which is based not just on technological and scientific knowledge, but also in a broader sense of ideas, creativity, originality and novelty. The recognition by Romer and Lucas, among others, that knowledge was not only endogenous, but that it also spilled over for commercialisation by firms and individuals other than the firm or university actually creating that knowledge in the first place, shifted the policy debate and focus away from instruments inducing investments in physical capital towards instruments generating knowledge and ideas, such as university research, education and training, and patents. Indeed, as shown in Figure 2, one notes the relative increase in patent activity in the late 1980s.

**FIGURE 3.2: COUNTRIES INNOVATIVE PROPENSITY, 1883 TO 2006**



Source: World Intellectual Property Organisation

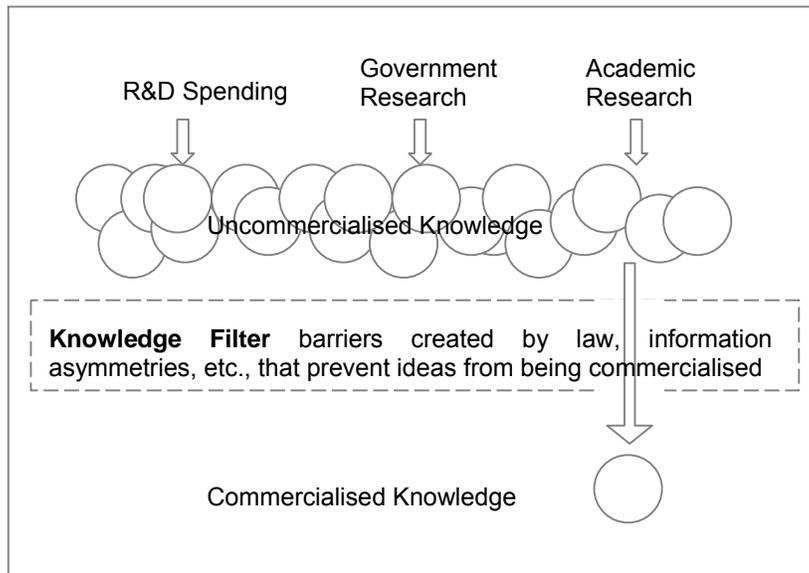
Thus, even as Europe began losing the comparative advantage in physical capital, it seemed to be at least as well poised to thrive with a knowledge-based economy. In particular, the Nordic countries, but also Northern Europe more generally, ranked among the world's leaders in terms of the most common measures of knowledge. Thus, the inability of countries which were knowledge leaders, such as Sweden, to prosper in the global economy was so striking that it was referred to as the 'Swedish Paradox'. However, it was not just Sweden that exhibited surprising low growth rates and rising unemployment, while at the same time have high rates of investment in research, human capital and culture. The European Union adapted the label to describe what it termed as the 'European Paradox'. While the prescriptions of

investments in knowledge reflecting the policy prescriptions of the economic models of scholars, the experience of Sweden, and in fact much of Europe, suggested that the links between knowledge and growth are, in fact, more nuanced and complicated.

### 3.4 The Knowledge Filter and Entrepreneurship

How basic could policy makers solve the European Paradox, or stagnant economic growth even in the wake of vigorous investments in human capital, research and, more generally, knowledge? The resolution to this paradox lie in the conditions inherent in knowledge -- high uncertainty, asymmetries and transactions cost -- which result in decision making hierarchies in companies reaching the decision not to pursue and try to commercialise new ideas that individual economic agents, or groups or teams of economic agents think are potentially valuable and should be pursued. The characteristics of knowledge distinguishing it from information, a high degree of uncertainty combined with non-trivial asymmetries, combined with a broad spectrum of institutions, rules and regulations impose what Audretsch and Acs term the knowledge filter. The knowledge filter is the gap between knowledge that has a potential commercial value and knowledge that is actually commercialised. In some senses, it is a barrier for invention. Inventions which are not commercialised are unable to cross over into the commercial sector and consequently positively affect economic growth. The greater is the knowledge filter, the more pronounced is the gap between new knowledge and commercialised knowledge. As one notes in Figure 3.3, entrepreneurs play a unique role in advancing innovation.

**FIGURE 3.3: ENTREPRENEURSHIP ALLOWS IDEAS WITH COMMERCIAL POTENTIAL TO CROSS THE KNOWLEDGE FILTER**



An example for Figure 3.3, is an employee from an established large corporation, or university, often a scientist or engineer working in a research laboratory, who will have an idea for an invention and ultimately for an innovation. Accompanying this potential innovation is an expected net return from the new product. The knowledge worker would expect to be compensated for her potential innovation accordingly. However, the company has a different, presumably lower, valuation of the potential innovation since it does not understand its commercial potential (asymmetry of information). Hence it may decide either not to pursue it's the product's development, or that its development merits a lower level of compensation than that expected by the employee.

In either case, the knowledge worker will weigh the alternative of starting her own firm. If the gap in the expected return accruing from the potential innovation between the inventor and the corporate decision maker is sufficiently large, and if the cost of starting a new firm is sufficiently low, the employee may decide to leave the large corporation and establish a new enterprise. Cost of starting a new firm may be sufficiently low if institutions such as the Small Business Administration offer her seed money to start up, and there are favourable intellectual property regulations, i.e. regulations which allow employees to start up companies in similar areas of work as their former employer. Such start-ups typically do not have direct access to a large R&D laboratory, yet are able to start up when there are sufficient institutions, regulations and non-trivial asymmetries. Thus, countries that are richer in knowledge and have a more porous knowledge filter will offer more entrepreneurial opportunities and, therefore, should also induce more entrepreneurial activity. By contrast, those contexts that offer a more closed knowledge filter will offer only meagre entrepreneurial opportunities generated by knowledge spillovers, and therefore would induce less entrepreneurial activity.

It is the knowledge filter that impedes investments in knowledge from spilling over for commercialisation that leads to the so-called Swedish Paradox and European Paradox. Europe was not alone in having investments in knowledge choked off from resulting in economic growth by the knowledge filter. The United States has also not been able to avoid the knowledge filter. In fact, the knowledge filter impeding the commercialisation of investments in research and knowledge can be formidable. As Senator Birch Bayh warned, "A wealth of scientific talent at American colleges and universities -- talent responsible for the development of numerous innovative scientific breakthroughs each year -- is going to waste

as a result of bureaucratic red tape and illogical government regulations...<sup>95</sup> It is the knowledge filter that stands between investment in research on the one hand, and its commercialisation through innovation, leading ultimately to economic growth, on the other.

Seen through the eyes of Senator Bayh, the magnitude of the knowledge filter was certainly daunting, "What sense does it make to spend billions of dollars each year on government-supported research and then prevent new developments from benefiting the American people because of dumb bureaucratic red tape?"<sup>96</sup>

Confronted with a formidable knowledge filter, which impedes the spillover of knowledge from the firm or organisation where it was originally generated, public policy instruments to promote investment in knowledge, such as human capital, R&D, and university research may not adequately generate economic growth. One interpretation of the European Paradox, where such investments in new knowledge have certainly been substantial and sustained, but vigorous growth and reduction of unemployment have remained elusive, is that the presence of such an imposing knowledge filter chokes off the commercialisation of those new knowledge investments, resulting in diminished innovative activity and ultimately stagnant growth.

By choking off the spillover and commercialisation of knowledge and new ideas, the knowledge filter at the same time presents opportunities for individuals, or teams of individuals, that might place a high valuation on the potential of that knowledge, to become entrepreneurs. If people are not able to pursue and implement their ideas and vision within the context of an incumbent firm or organisation, in order to appropriate the value of her knowledge and ideas, the agent would need to start a new firm, that is to become an entrepreneur.

The entrepreneurial startup reflects knowledge spillover entrepreneurship because the ideas serving as the basis for the startup were obtained, typically for little or no cost, from a different, incumbent firm or organisation. Thus, knowledge spillover entrepreneurship serves as a conduit for the spillover new ideas generated created by an incumbent organisation but left uncommercialised.

The knowledge spillover theory of entrepreneurship, suggests that contexts which are rich in knowledge will tend to generate more entrepreneurial opportunities.<sup>97</sup> Fewer entrepreneurial opportunities will be generated in a context with a lower amount of investment in new ideas and knowledge. By contrast, those contexts that have less knowledge will generate fewer entrepreneurial opportunities. A consequence of globalisation, which has shifted the comparative advantage of developed countries from physical capital to knowledge capital, is that entrepreneurial opportunities become more pervasive.<sup>98</sup>

### 3.5 Entrepreneurship Policy

In distinguishing entrepreneurship policy from more traditional approaches towards business, a shift has occurred away from the focus on the traditional triad of policy instruments essentially constraining the freedom of firms to contract -- regulation, competition policy and public ownership of business. The policy approach of constraint was sensible as long as the major issue was how to restrain large corporations in possession of considerable market power. That this policy approach towards business is less relevant in a global economy is reflected by the waves of deregulation and privatisation throughout the OECD.

Probably the greatest and most salient change in small business policy over the last 15 years has been a shift from trying to preserve small businesses that are confronted with a cost disadvantage due to size inherent scale disadvantages, towards promoting the startup and viability of new and small firms involved in the commercialisation of knowledge, or knowledge-based entrepreneurship.

Entrepreneurship policy is a relatively new phenomenon. An important distinction should be made between the traditional small business policies and entrepreneurship policies. Small business policy typically refers to policies implemented by a ministry or government agency charged with the mandate to promote small business. The actual definition of a small business varies considerably across countries, ranging from enterprises with fewer than 500 employees in some of the most developed countries, such as the United States and Canada,

to fewer than 250 employees in the European Union, to 50 employees in many developing countries.

Small business policy typically takes the existing enterprises within the appropriate size class as exogenous, or given, and then develops instruments to promote the viability of those enterprises. Thus, small business policy is almost exclusively targeted towards the existing stock of enterprises and virtually all of the instruments included in the policy portfolio are designed to promote the viability of the small business.

By contrast, entrepreneurship policy has a much broader focus. There are at least two important ways that distinguish entrepreneurship policy from small business policy. The first is the breadth of policy orientation and instruments. While small business policy has a focus on the existing stock of small firms, entrepreneurship policy is more encompassing in that it includes potential entrepreneurs. This suggests that entrepreneurship policy is more focussed on the process of change, regardless of the organisational unit, whereas small business policy is more static in nature and remains focussed on the enterprise level. Entrepreneurship policy also has a greater sensitivity to framework or contextual conditions that shape the decision-making process of entrepreneurs and potential entrepreneurs.

While small business policy is primarily concerned with one organisational level, the enterprise, entrepreneurship policy encompasses multiple units of organisation and analysis. These range from the individual to the enterprise, and to the cluster or network, which might involve an industry or sectoral dimension, or a spatial dimension, such as a district, city, region, or even an entire country. Just as each of these levels is an important target for policy, the interactions and linkages across these disparate levels are also important. In this sense, entrepreneurship policy tends to be more systemic than small business policy. However, it is important to emphasise that small business policy still remains at the core of entrepreneurship policy.

The second way distinguishing entrepreneurship policy from traditional small business policy is that virtually every country has a ministry or governmental agency charged with promoting the viability of the small business sector. These ministries and agencies have by now developed a well-established arsenal of policy instruments to promote small business. However, no such agencies exist to promote entrepreneurship. Part of the challenge of implementing entrepreneurship policy is that no country has yet to introduce an agency mandated with the charge of promoting entrepreneurship. Rather, aspects relevant to entrepreneurship policy can be found across a broad spectrum of ministries and agencies, ranging from education to trade and immigration. Thus, while small business has agencies and ministries that champion their issues, no analogous agency exists for entrepreneurship policy.

Not only is entrepreneurship policy implemented by very different agencies than those implementing either the traditional policy instruments constraining the freedom of firms to contract, or those implementing traditional small business policy, but it involves a very different and distinct set of policy instruments.

Not only are the instruments of entrepreneurship policy decidedly distinct from those traditionally used towards business and small business in particular, but the locus of such enabling policies is also different. The instruments constraining the freedom of firms to contract -- antitrust, regulation and public ownership -- were generally controlled and used at the federal or national level. By contrast, the instruments of entrepreneurship policy are generally applied at the decentralised level of a state or city or local level and not at a national or federal level.

Entrepreneurship policy ranges across a broad spectrum of instruments spanning taxes, immigration, education, as well as more direct instruments such as the provision of finance or training. If entrepreneurship policy can be viewed as the purposeful attempt to create an entrepreneurial economy, entire institutions that were the cornerstone of the Solow Economy are being challenged and reconfigured, at least throughout the OECD countries, to create the entrepreneurial economy.

### 3.6 Conclusion

Globalisation has ravaged the traditional post-war strategy that was so dependable for ensuring economic growth, the creation and sustainability of high quality employment, and overall prosperity. The comparative advantage for economic activity based on the factor of physical capital has shifted away from the high-cost countries of (Western) Europe and North America, wreaking havoc for workers employed in those traditional manufacturing industries.

Instead, the comparative advantage in Europe and North America has shifted towards knowledge-based economic activity, which cannot be shifted around the globe to lower cost locations. However, as first the Swedish Paradox and later the European Paradox indicate, a public policy approach focusing solely on investments in knowledge, research and human capital may not be sufficient to ensure that a return on those investments can be socially appropriated in terms of jobs, growth and competitiveness. Rather, the knowledge filter may impede investments in research, education, and human capital from spilling over to generate innovations and commercialisation and ultimately economic growth.

Entrepreneurship can serve as a conduit facilitating the spillover and commercialisation of knowledge, enabling society to realise a return on knowledge investments in terms of employment, growth and competitiveness. Therefore, an important new role for growth policy in the era of globalisation is to shape institutions and policies that will promote entrepreneurship. Such policies span a broad spectrum of institutions and policy areas, spanning education, family, immigration, health and security, to tax and finance.<sup>99</sup> By linking wealth creation from past investments into knowledge to subsequent investments in knowledge and the creation of entrepreneurship policy, entrepreneurs can ensure the sustainability of employment, growth and competitiveness by taking advantages of the opportunities afforded by globalisation.

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<sup>78</sup> 2002, p. 1.

<sup>79</sup> Scherer, 1970.

<sup>80</sup> 1934, p. 106.

<sup>81</sup> 1956, p. 86.

<sup>82</sup> Riesman, 1950.

<sup>83</sup> Whyte, 1960.

<sup>84</sup> Piore and Sabel, 1984 and Chandler, 1977.

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<sup>85</sup> 1976, p. 259.

<sup>86</sup> Brown, Hamilton and Medoff, 1990; and Brown and Medoff, 1989.

<sup>87</sup> Scherer, 1970.

<sup>88</sup> Geroski, 1989.

<sup>89</sup> Quoted from Scherer (1977): 980.

<sup>90</sup> For example see Scherer, 1975.

<sup>91</sup> <http://www.sba.gov/aboutsba/sbahistory.html>

<sup>92</sup> *Der Spiegel*. 2004. "Bye-Bye, Made in Germany". October 25.

<sup>93</sup> This is referred to as Sektstimmung, or "sparkling wine mood". In *Süddeutsche Zeitung*. 2006. "Angst vor Aufschwung ohne Jobs". February 1.

<sup>94</sup> *Die Welt*. 2006. "Merkel ist Gewarnt". February 1.

<sup>95</sup> Introductory statement of Birch Bayh, September 13, 1978, cited from the Association of University Technology Managers Report (AUTM) 2004: 5.

<sup>96</sup> Statement by Birch Bayh, April 13, 1980, on the approval of S. 414 (Bayh-Dole) by the US Senate on a 91-4 vote, cited from AUTM 2004: 16.

<sup>97</sup> Audretsch, 1995; and Audretsch et al., 2006.

<sup>98</sup> Audretsch, 2007.

<sup>99</sup> *Ibid.*

## 4. Special Topics: Charity and Happiness

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### 4.1 Introduction

Everyone knows that *money doesn't buy happiness*. We hear this from the time we are children, and are cautioned not to chase lucre instead of our real dreams and passions; not to trade our family lives for our jobs; not to pin our hopes and dreams to striking it rich when our real happiness is within the reach of an average, middle-class life. Empirically, this line of thought is borne out by the data. Indeed, study after study has shown the following:<sup>101</sup>

When countries get richer over time, above basic levels of subsistence, citizens on average do not get happier, even when prosperity gains are spread fairly evenly across the population.

Richer countries do not have happier citizens than poorer ones, except in cases of countries that are miserably poor.

Individuals adapt very quickly to income increases, and do not get permanently happier when they get richer.

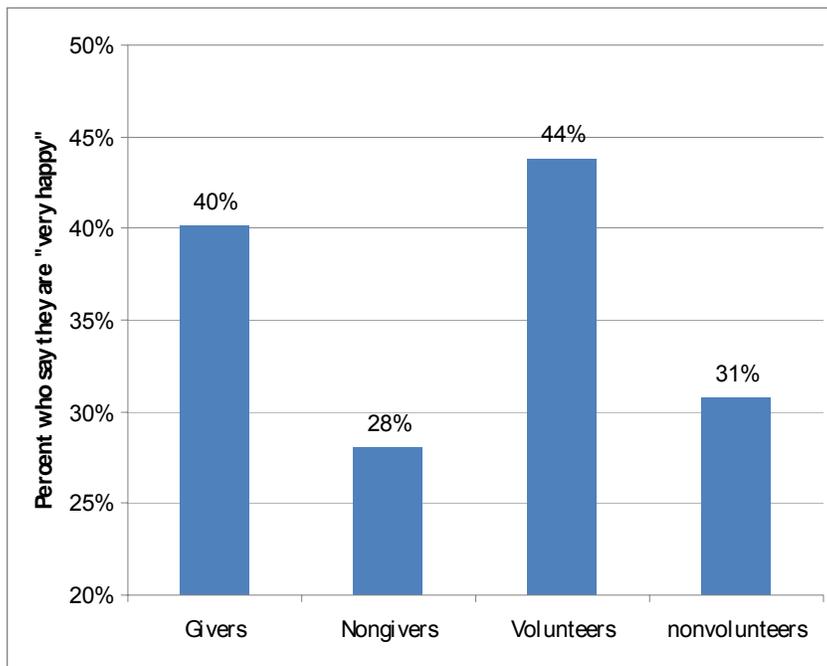
As important as these conclusions are, they do not however describe all the possible ways to 'buy happiness'. Indeed, when people dispose of their incomes -- whether these incomes are high or low -- they can do so in many ways. The literature on income levels and happiness says nothing about whether all types of spending are equally insignificant in their happiness effects.

In point of fact, there is one kind of spending that *does* induce a tremendous amount of happiness: charitable giving. The evidence is clear that gifts of money -- as well as gifts of time -- to charitable organisations, houses of worship, and other worthy causes, brings authentic happiness to givers. A growing body of experimental and survey data show quite clearly that giving is an effective way to 'buy happiness', and both individuals and communities can use this fact to raise their happiness levels quite reliably. This essay presents the evidence on happiness and charity, summarises the research explaining why giving causes human felicity, and draws several conclusions for policy.

### 4.2 Giving is Linked to Happiness: the Evidence

People who give charitably are happier than people who don't. The 2000 Social Capital Community Benchmark Survey (SCCBS) of approximately 30,000 American households in more than 40 communities nationwide reveals that people who give money to charity are 12 percentage points more likely than non-givers to say they are very happy people (40 to 28 percent). Volunteers are 13 points more likely to be very happy than non-volunteers (44 to 31 percent). It doesn't matter whether gifts of money go to religious or secular organisations. And the more people give, the happier they get. If two people are identical in terms of income, education, age, religion, politics, sex, and family -- but one volunteers once more than the other each week -- the volunteer will be half again as likely to say he or she is "very happy".<sup>102</sup>

**FIGURE 4.1. GIVING, VOLUNTEERING, AND SELF-REPORTS ON HAPPINESS**



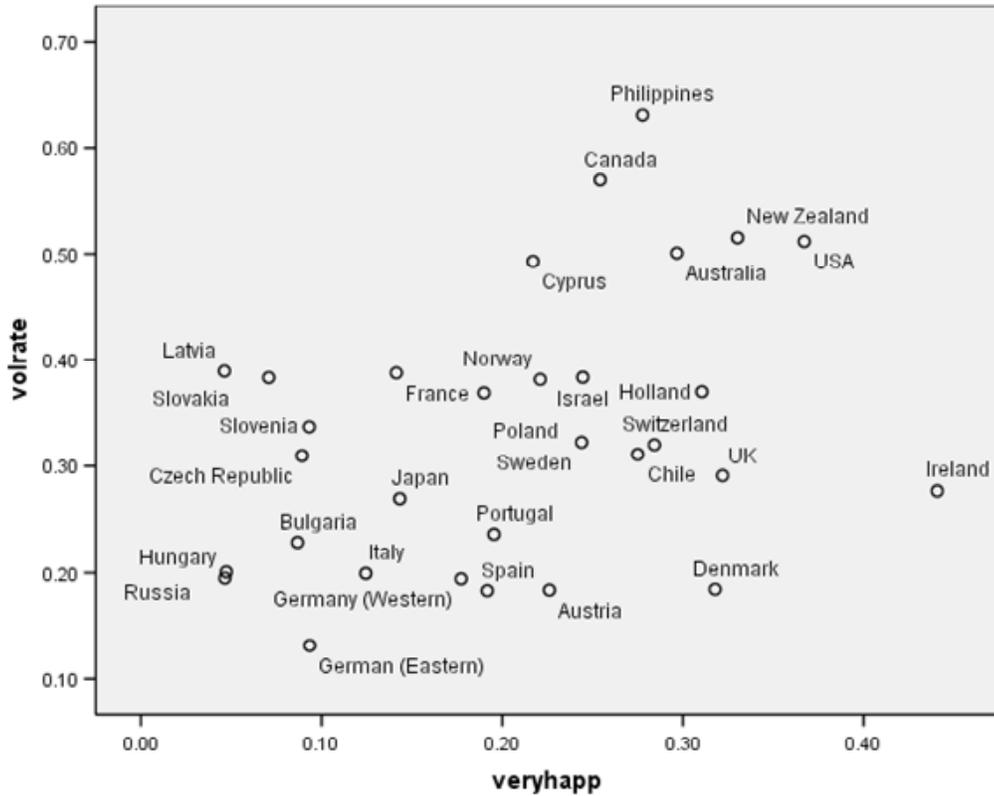
*Data: 2000 Social Capital Community Benchmark Survey*

Not surprisingly, people who give are less likely than non-givers to experience unhappiness. According to the University of Michigan's Panel Study of Income Dynamics (PSID), while 30 percent of Americans who gave money in 2001 said they had felt "so sad nothing could cheer [them] up" in the past month, 40 percent of non-givers had felt this way. Non-givers were two thirds likelier than givers to have felt "hopeless", and nearly twice as likely as givers to say that they felt "worthless". These differences persist even if givers and non-givers earn the same amount of money and have the same personal characteristics.<sup>103</sup>

The happiest communities in America tend to be those in which people give and volunteer the most. The SCCBS shows that in 2000, a ten-point increase in the percentage of citizens in a community who give money to charity corresponds to an eight-point rise in the percentage who say they are very happy. Even further, the extra ten points in giving correspond to a six-point increase in the percentage of *non-givers* in a community who say they are very happy. This suggests that even those who don't give benefit from living in the happy places where most people are charitable.<sup>104</sup>

The link between giving behaviour and happiness is not limited to the United States. The International Social Survey Programme (ISSP) from 1998 showed that in America, 51 percent of the population volunteered and 37 percent of people said they were very happy. Compare this with Germany, where 19 percent volunteered and 18 percent were very happy, or Russia, where 20 percent volunteered but only five percent were very happy. Obviously, there are many forces explaining the happiness of citizens besides their volunteering (especially in a country like Russia); still, the correlation is striking. Comparing the volunteering and happiness in 32 countries, we find that a 10 percentage-point increase in the rate of volunteering corresponds to a 3-point rise in the percentage of people who say they are very happy.<sup>105</sup>

**FIGURE 4.2. VOLUNTEERING RATES AND PERCENTAGE OF POPULATIONS SAYING THEY ARE “VERY HAPPY”**



*Data: International Social Survey Programme, 1998*

Giving goes beyond formal gifts of money and time, of course. Donating blood, for instance, is one particularly personal kind of giving. The 2002 General Social Survey (GSS) shows that slightly more than 15 percent of Americans donate at least once each year. There is evidence that this form of giving brings even greater happiness than financial charity does. In 2002, people who gave blood two or more times during the year were 14 percentage points more likely than non-donors to say they were very happy (43 to 29 percent). The same pattern applies to many informal and nontraditional types of charity such as giving to a homeless person on the street, giving directions to a stranger on the street, and so forth.<sup>106</sup>

Happiness researchers have looked at many population groups, historical periods, and geographical regions, and have concluded that charitable people are happier people than uncharitable people.<sup>107</sup> It is simply unambiguous that giving is associated with happiness. But does giving *cause* happiness? That is what the statistics seem to imply, or at least how they are commonly interpreted. However, it is also possible that happy people simply tend to be the most charitable. Or, it may well be that factors such as culture, faith, education, and family values affects both happiness *and* the tendency to act charitably.

To prove that charity actually *causes* happiness, we need evidence on how people change *after* they give to others, and *because* they have given. This comes from experiments on giving -- experiments that have been conducted, and which show enormous positive life changes that can be directly attributed to giving.<sup>108</sup> In one study of senior citizens in the Detroit area, researchers created an experiment in which the subjects were asked about their happiness, and then given a set of volunteering opportunities they could choose according to

their interests. Six months later were asked whether they had volunteered for any of these causes, and their happiness was measured again. The result was that a tremendous amount of happiness was attributable to the volunteering experiences. The researchers found that volunteering during just six months explained increases in morale, self-esteem, and sense of social integration.<sup>109</sup>

### 4.3 Why Does Giving Bring Happiness?

Many people know intuitively that giving to others brings happiness, and the statistics cited above may come as no major surprise. Perhaps more interesting than *whether* giving brings happiness, is *why* this is so.

To begin with, there are physiological explanations for the connection between giving and happiness. There is evidence that giving affects our brains in pleasurable and beneficial ways. Starting in the 1980s, researchers began to accumulate evidence that people who volunteer often report feelings of euphoria. Psychologists have referred to this as the 'Helper's High', and believed it was due to endorphins -- natural opioids in the brain that produce a mild version of the sensations from artificial opiates like morphine and heroin.<sup>110</sup>

Further, charitable giving lowers stress, as measured in the cortisol, epinephrine, and norepinephrine in the brain. In one experiment, adults were asked to give massages to babies -- the idea being that giving a baby pleasure is a compassionate act with no expectation of a reward -- even a 'thank you' -- in return. After they performed the massages, the seniors were found to have markedly lower stress hormone levels. In fact, researchers discovered the subjects enjoyed more stress-lowering effects from giving massages even than they did from getting them.<sup>111</sup>

In several recent experiments, researchers have looked directly at the brain while people engage in giving activities. This involves functional magnetic resonance imaging (fMRI): Test subjects are put into narrow hollow tubes and asked, via an interactive computer, to make decisions about whether they want to give to various charities or not. In one such study, subjects were given a certain amount of money, and then asked whether they wanted to give some of it to charitable organisations. Researchers found that the part of the brain activated when people designated gifts was the same part that lit up when people received money themselves.<sup>112</sup>

Charity also brings happiness for psychological reasons. For example, giving money and volunteering time can provide an important means to 'reboot' mentally. Psychologists have found that giving 'crowds out' unhappiness because our brains tend to focus on just one problem at a time. In particular, the challenge of helping someone else tends to displace the challenge of facing one's own personal troubles. Giving and volunteering are thus highly effective ways to redirect our energies away from our own problems.<sup>113</sup>

In addition to creating psychical and physiological wellbeing, giving almost certainly creates happiness by bringing the favour of others. There is evidence that people are held in higher esteem and rewarded when others see them behaving generously. In 2006, British researchers conducted a laboratory experiment on cooperation, in which subjects were brought together in small groups, given an equal amount of money, and asked individually to decide whether to keep it or donate some part of it to a 'group fund'. The researchers then counted the money in each group fund, doubled it, and distributed it equally among each group's participants. The optimal strategy for a group was to put in all the money and thus double each person's earnings. But each individual had the incentive to 'defect' (not contributing any of his own money to the group fund) while selfishly hoping the other group members cooperate -- so that he could keep all his money and also get a part of the others'.<sup>114</sup>

The British researchers found that most groups were fairly cooperative, especially if individuals' cooperation decisions were made in front of the others. Some people gave more than others, however, donating more to the fund than they got back in return. The researchers wanted to know how the others felt about these generous members. They investigated this question with a second phase of the experiment, in which the individuals in each group were individually asked to vote for a group leader. In more than 80 percent of the groups, they elected the most generous member. The researchers concluded that, when people can

choose the people they will deal with, they prefer altruists over selfish people. But even more importantly, the results imply that generosity and faith in others can be good for a person professionally: These qualities signal that an unusually giving person deserves leadership. It is hardly surprising that givers tend to be happier after they give if they are thus more successful in life.

#### 4.4 Giving Makes us Richer, Too<sup>115</sup>

We saw at the outset of this essay that income does not deliver enduring happiness. There is no evidence that income brings *unhappiness*, however, and many of us would like more prosperity for reasons apart from sheer happiness. So it is still worth noting the emerging evidence that giving brings financial benefits as well as psychological ones. Simply put, giving appears to make us richer, both as individuals and groups.

There is a pervasive belief in America and many other places that philanthropy and prosperity are inter-related. And this is not just the obvious economic point that higher income can lead to higher giving. Rather, it is the religious or quasi-religious notion that giving itself drives prosperity. In the words of Gaius the innkeeper in John Bunyan's *The Pilgrim's Progress*,

*A man there was, tho' some did count him mad  
the more he cast away, the more he had.*

Gaius interprets the verse thus:

*He that bestows his Goods upon the Poor  
Shall have as much again, and ten times more.<sup>116</sup>*

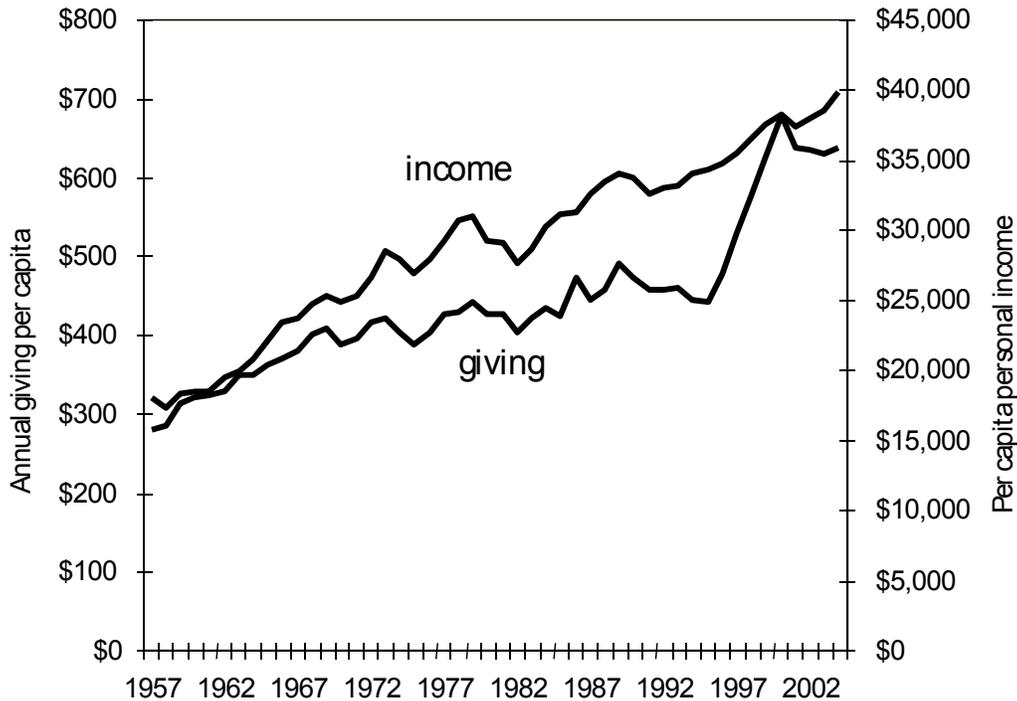
Economists have long shown that income and giving are positively correlated. Furthermore, they have shown that higher income pushes up giving. Specifically, studies show that a ten percent increase in income stimulates an increase in charitable donations in the neighbourhood of seven percent, even after controlling for other factors, like education, age, and race. What many believe, however, is that the correlation between income and giving is not just one-way: that in addition to income increasing giving, giving increases income as well.<sup>117</sup>

The data support this belief. For example, American survey data from 2000 indicate that, controlling for education, age, race, and all the other outside explanations for giving and income increases, a dollar donated to charity generated \$3.75 in extra income. This is most likely evidence that givers have certain characteristics that make them more economically effective than non-givers for the reasons already discussed. It may also be an explanation for average material prosperity levels that are consistently higher in America than in Europe.<sup>118</sup>

The financial advantages of giving do not stop with individual givers -- there is also evidence that donations push up income even more at the level of the whole economy. We can demonstrate this by looking at average household charity and GDP per capita as they change over time. Charity and GDP levels have moved together over the years: Correcting for inflation and population changes, U.S. Government data show that GDP per person in America has risen over the past 50 years by about 150 percent. At the same time, donated dollars per person have risen by about 190 percent. (See Figure 4.3.)

As in the case of individual income, the evidence is that GDP and giving are mutually reinforcing: Economic growth pushes up charitable giving, and charitable giving pushes up economic growth. For example, in 2004, \$100 in extra income per American drove about \$1.47 in charitable giving, per person. At the same time, \$100 in charitable giving stimulated more than \$1,800 in income. In short, giving has a positive role in American economic growth. It is a good investment for our country -- some might even go so far as to say that charity is a patriotic act.<sup>119</sup>

**FIGURE 4.3. REAL CHARITABLE GIVING AND INCOME PER CAPITA IN THE UNITED STATES, 1954-2004**



*Data: Giving USA Foundation, Statistical Abstract of the United States*

#### 4.5 Public Policy and Private Attitudes

All together, the research on giving puts paid to a common cynical claim about humans: that we are naturally selfish. On the contrary, our brains, minds, and bodies experience equilibrium and pleasure when we give. It clearly follows that we should try to maximise charity in America and other nations if we are concerned about national happiness -- which is to say, having the largest number of happy citizens. What can governments do on the level of social policy to maximise charitable behaviour?

When we think of the role of the government in charitable giving, we generally think about tax breaks. The U.S. Federal Government and state governments make money gifts to public charities tax deductible: They do not function as taxable income, so long as taxpayers 'itemise deductions', which is to say, they fill out a special tax form and forgo a standard, uniform tax break. Then, she can take her donations off her taxable income -- meaning that the amount she saves in taxes is the donations multiplied by her tax rate. So if she gives \$1,000 and pays a tax rate of 35 percent on her last dollar of income, her donation saves her \$350 in taxes.

In most other developed countries, tax incentives for giving take the form of non-refundable tax credits, which effectively give all taxpayers the same refund on their tax bill per dollar donated. Tax credits are more equitable than deductions, because they do not treat the rich any more kindly than the charitable non-rich.

Favourable tax treatment for charitable contributions is obviously worth keeping -- tax deductions and credits induce a small amount of charitable giving at the margin, according to most studies. But tax incentives are still irrelevant for many people. First, citizens who pay no income tax cannot get a tax deduction, and this applies to at least a third of working adults in the United States. Second, in America, Internal Revenue Service records show that only about a third of people who file tax returns itemise their deductions -- which means that most

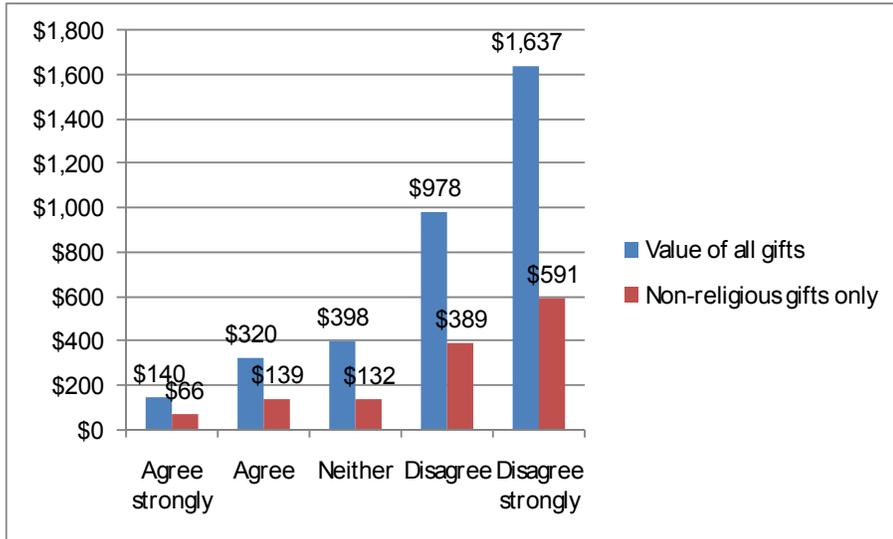
Americans (those who are middle class and below in particular) don't even claim the deductions to which they are entitled. Third, research shows that virtually nobody is motivated meaningfully to give only because of our tax system. I've been doing research in this field for many years, and I've never seen a tax break that can warm up a cold heart.<sup>120</sup>

The most productive focus for the government is probably not to create incentives for people to give, but to figure out how to avoid *disincentives* to giving. Government impedes giving behaviour all the time, making it difficult or even impossible to behave charitably. One way it does so is through regulatory barriers. Take, for example, a 2006 policy adopted by Fairfax County, Virginia, which barred residents from giving food to the homeless unless it was prepared in a kitchen approved by the county. This disqualified the food being produced by approximately half the operating shelters and churches that had previously fed the hungry in that county. Officials argued that this measure was to prevent food poisoning, despite the fact that food poisoning had never been reported from donated food. The result, however was that the homeless were now more likely than before to eat out of the trash instead of church kitchens -- and individuals would be less able to give.<sup>121</sup>

Government barriers to charity are not always so obvious, however. Governments can discourage giving in more subtle ways as well. For example, when governments fund nonprofits, this tends to displace private donations. This effect is most pronounced in assistance to the poor and other kinds of social welfare services: When the American government gives a human service agency \$1, it displaces up to 40 cents in private donations. Similar effects have been found in Canada and Great Britain. Likewise, when the government gives \$1 to an arts organisation, it lowers private giving to the organisation by about 30 cents. The reason for this may have something to do with the behaviour of donors -- there is less perceived need when a non-profit gets a government grant. But even more, it is related to the behaviour of nonprofits themselves, which tend to fundraise less when they receive government subsidies.<sup>122</sup>

It turns out that the governments can displace private giving even if citizens *think* the state should be providing services. In 1996, Americans who disagreed that "the government has a responsibility to reduce income inequality" gave four times more money to charity than those who agreed with this statement (see Figure 4.4). This was true for every type of charity, from religion, to aid for the poor, to environmental protection. This pattern also extends to non-money giving. In 2002, people who said we are spending "too much money on welfare" were a third likelier to donate blood than those who said we are spending "too little". Note that this charity difference is not due to anything the government is actually doing; rather, to what people think the government *should* be doing. In other words, for many Americans, a mere belief about the government substitutes for private giving.<sup>123</sup>

**FIGURE 4.4. AVERAGE ANNUAL GIVING BY AMERICANS ACCORDING TO RESPONSES TO THE STATEMENT, "THE GOVERNMENT HAS A RESPONSIBILITY TO REDUCE INCOME INEQUALITY", 1996**



Source: General Social Survey, 1996

None of this means that the state should have no role in providing goods and services in our society -- that would be an outlandish claim. Governments cannot be entirely replaced by philanthropy, realistically. In 2002, various levels of government in the U.S. provided more than \$200 billion in funds to the American nonprofit sector as well as more than \$40 billion in tax revenues not collected because of the tax-deductibility of charitable contributions. This puts government money at a roughly equal level with private giving. And in some areas, such as social welfare, government money greatly exceeds private giving as a source of support.<sup>124</sup>

All together, the most reasonable claim is that government activity is not costless when it comes to happiness, because it displaces significant amounts of private, voluntary giving. We will always pay for some services through the public sector. However, if happiness is a national goal, countries ought to be working to expand private giving as much as possible, and vigilant against creating barriers to charity.

#### 4.6 Who are the Givers?

In most happiness indices, the United States does very well by international standards. There are many reasons for this. One of them is that the U.S. is an exceptionally charitable country. Americans privately gave nearly \$300 billion to charity in 2006 -- more than the entire GDP of some of the countries of Europe.<sup>125</sup>

The average American is a giver. More than three-quarters of total American charity comes from private individuals, as opposed to foundations, corporations or bequests. Surveys consistently find that between 65 and 85 percent of U.S. families make charitable donations each year. Among the families that gave, the average amount donated to charity in 2003 was more than \$1,800. And contrary to what one might assume, it is not the case that this giving goes all -- or even mostly -- to churches. Only about a third of individual gifts go toward religion, such as support for houses of worship. The rest goes to secular activities, such as education, health, and social welfare.<sup>126</sup>

Still, not everyone in America gives: Approximately 30 million American families decline to give away money each year. And these families tend not to make up for it with other, non-financial forms of giving, either. On the contrary, people who give formally to charity are the ones who give informally as well: Money donors are nearly three times as likely to give money informally to friends and strangers as non-donors are. People who give to charity at least

once per year are twice as likely to donate blood as people who don't give money. They are also significantly more likely to give food or money to a homeless person.

Not surprisingly, the fault lines between charitable America and uncharitable America lie very close to the fault lines between happy America and unhappy America. Political ideology is one factor in both divides: people on the political right are generally both happier and more charitable than those on the left. In the year 2000, households headed by a self-identified 'conservative' gave, on average, 30 percent more dollars to charity than households headed by a 'liberal' (where 'liberal' has the American connotation of left-wing politics), even though the average conservative family has a slightly lower income than the average liberal family. Volunteering levels are virtually the same between conservatives and liberals, but in most other non-money ways, conservatives outpace their liberal and moderate counterparts. For example, if liberals and moderates gave blood like conservatives do, the blood supply in the U.S. would increase by nearly half.<sup>127</sup>

Political conservatives are also significantly happier than liberals, on average. Indeed, in 2004, Americans who said they were conservative or very conservative were nearly twice as likely to say they were very happy as people who called themselves liberal or very liberal (44 percent versus 25 percent). Further, a 2007 survey found that 58 percent of American Republicans rated their mental health as "excellent", versus 43 percent of political independents and just 38 percent of Democrats.<sup>128</sup>

Religious faith plays an even greater role than politics in both happiness and charitable behaviour. In 2000, religious Americans (those who attended a house of worship weekly or more) were 21 percentage points more likely to donate money each year than secularists (who attended seldom or never), and gave away 3.5 times more money -- despite having the same average incomes. They gave significantly more to both religious and secular charities, and also gave far more in informal ways such as volunteering and donating blood. These facts favour conservatives, not because something about right-wing politics makes people generous, but rather because there are nearly four times as many religious conservatives as there are religious liberals. In truth, religious liberals are every bit as generous as religious conservatives -- there are simply fewer of them in America today.<sup>129</sup>

Religious people of all faiths are happier than secularists, on average. In 2004, 43 percent of religious folks said they were "very happy" with their lives, versus 23 percent of secularists. Religious people are a third more likely than secularists to say they are optimistic about the future. Secularists are nearly twice as likely as religious people to say, "I am inclined to feel I am a failure".<sup>130</sup>

But even beyond one's political views or religious affiliation, it is a simple fact that charity by itself makes individuals happier. Even if two people are identical in religious attendance, political views (as well as marital status, income, education, race, age, and everything else that might be relevant), but one gives money or volunteers while the other doesn't, the giver will still be significantly happier than the non-giver, on average.<sup>131</sup>

## 4.7 Conclusion

If you asked me how you could be happier and I told you how to vote or worship, you might reject my advice as unhelpful. Some things are -- or at least seem to be -- out of our control in the short run. But if I told you to give to charity, I would be giving you good and practical advice.

And what constitutes good personal advice also amounts to a sound policy prescription. Nations wishing to attain greater felicity do well to institute policies that facilitate giving behaviour, and avoid policies that discourage it. If happiness is a national priority, private giving necessarily is as well.

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<sup>100</sup> This essay is adapted from several sections of the book *Gross National Happiness: Why Happiness Matters for America -- and How We Can Get More of It* by Arthur C. Brooks. 2008. Basic Books.

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<sup>101</sup> For a survey of the literature on this point, see Frey, Bruno S. and Alois Stutzer. 2002. "What Can Economists Learn from Happiness Research?" *Journal of Economic Literature*, 40(2): 402-435.

<sup>102</sup> Roper Center for Public Opinion Research. 2000. *Social Capital Community Benchmark Survey* (SCCBS). <http://www.roper.com>

<sup>103</sup> 2001 PSID. In the Panel Study of Income Dynamics (PSID) Wave XXXII Computer File. Ann Arbor, Mich.: ICPSR. <http://simba.isr.umich.edu>

<sup>104</sup> 2000 Social Capital Community Benchmark Survey. This analysis regresses the population percentage giving to charity on the percentage saying they are very happy.

<sup>105</sup> 1998 International Social Survey Program (ISSP); "Zentralarchiv für Empirische Sozialforschung". This analysis regresses the population percentage volunteering for charitable, political, or religious causes on the percentage saying they are very happy.

<sup>106</sup> Davis, James Allan, Tom W. Smith, and Peter V. Marsden. 2004. *General Social Surveys (GSS), 1972-2004 GSS: Cumulative CodeBook*. Chicago, Ill.: National Opinion Research Center.

<sup>107</sup> See, for example, Wilson, David Sloan, and Mihaly Csikszentmihalyi. 2006. "Health and the Ecology of Altruism". In *The Science of Altruism and Health*, ed. S. G. Post: 6. Oxford: Oxford University Press; and

Dulin, P.L., and R.D. Hill. 2003. "Relationships between altruistic activity and positive and negative affect among low-income older adult service providers". *Aging & Mental Health* 7(4): 294-299.

<sup>108</sup> Much of this research is documented in Post, Stephen, and Jill Niemark. 2007. *Why Good Things Happen to Good People: The Exciting New Research that Proves the Link Between Doing Good and Living a Longer, Healthier, Happier*. New York: Broadway.

<sup>109</sup> Midlarsky, Elizabeth, and Eva Kahana. 1994. *Altruism in Later Life*. Newbury Park, CA: Sage Publications, Chapter 6.

<sup>110</sup> Luks, Alan. 1992. *The Healing Power of Doing Good: The Health and Spiritual Benefits of Helping Others*. New York: Fawcett; and

Luks, Alan. 1988. "Helper's High: Volunteering Makes People Feel Good, Physically and Emotionally. And Like 'Runner's Calm', It's Probably Good for Your Health". *Psychology Today* 22(10): 34-42.

<sup>111</sup>Field, T., Hernandez-Reif, M., O. Quintino, S. Schanberg and C. Kuhn. 1998. "Elder Retired Volunteers Benefit from Giving Massage Therapy to Infants". *Journal of Applied Gerontology* 17: 229-239.

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<sup>112</sup> Moll, Jorge, Frank Krueger, Roland Zahn, Matteo Pardini, Ricardo de Oliveira-Souza, and Jordan Grafman. 2006. "Human Fronto-Mesolimbic Networks Guide Decisions About Charitable Donation". *Proceedings of the National Academy of Sciences* 103(42): 15,623-15,628; and

Vedantam, Shankar. "If It Feels Good To Be Good, It Might Be Only Natural". *Washington Post*, May 28, 2007: A1.

<sup>113</sup> Baker S.C., C.D. Frith and R.J. Dolan. 1997. "The Interaction Between Mood and Cognitive Function Studied with PET". *Psychological Medicine* 27(3): 565-78.

<sup>114</sup> Hardy, C., and Van Vugt, M. 2006. "Nice Guys Finish First: The Competitive Altruism Hypothesis". *Personality and Social Psychology Bulletin* 32: 1402-1413.

<sup>115</sup> This section is adapted from Brooks, Arthur C. 2006. *Who Really Cares: The Surprising Truth About Compassionate Conservatism*, Chapter 8. New York: Basic Books.

<sup>116</sup> Bunyan, John. 1909-14. *The Pilgrim's Progress*, ed. Charles Eliot, Vol. XV, Part 1, The Harvard Classics: 521-522. New York: P.F. Collier and Son.

<sup>117</sup> McClelland, Robert and Arthur C. Brooks. 2004. "Comparing Theory and Evidence on the Relationship Between Income and Charitable Giving". *Public Finance Review* 32, no. 5: 483-497.

<sup>118</sup> This conclusion is the product of a two-stage least squares regression, in which income is regressed on a vector of demographics and a fitted value of charitable donations. This fitted value comes from a regression of donations on volunteer time plus appropriate demographics. See Brooks, Arthur C. 2007. "Does Giving Make Us Prosperous?" *Journal of Economics and Finance* 31(3): 403-411.

<sup>119</sup> Data in this discussion come from the Statistical Abstract of the United States (various years), and historical giving data from Indiana University's Center on Philanthropy. I infer causality through the use of Granger tests, in which I regress real GDP per capita on current real giving per capita, three annual lagged values of giving, and three annual lags in GDP.

<sup>120</sup> Internal Revenue Service. 2002. "Selected Itemized Deductions, Schedule A, 1990-2000". (<http://www.irs.gov/pub/irs-soi/01indded.pdf>); and

Rooney, Patrick M., Kathryn S. Steinberg and Paul G. Schervish. 2001. "A Methodological Comparison of Giving Surveys: Indiana as a Test Case". *Nonprofit and Voluntary Sector Quarterly* 30(3): 551-568.

<sup>121</sup> Balko, Rodney. November 29, 2006. "The Road to Hell..." Reason Online. <http://www.reason.com/blog/show/116966.html>

<sup>122</sup> Brooks, Arthur C. 2000. "Is There a Dark Side to Government Support for Nonprofits?" *Public Administration Review* 60(3): 211-218.

<sup>123</sup> See Brooks, Arthur. 2006. *Who Really Cares*: Chapter 3. New York: Basic Books.

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<sup>124</sup> Rushton, Michael, and Arthur C. Brooks. 2006. "Government Funding of Nonprofit Organisations". In *An Integrated Theory of Nonprofit Finance*, ed. Dennis R. Young. Lanham, MD: Lexington Books.

<sup>125</sup> Giving USA Foundation 2007, *Giving USA*. Glenview, IL: Giving USA Foundation. The data in this section are contained and described in Brooks, Arthur. 2006. *Who Really Cares*. New York: Basic Books.

<sup>126</sup> 2003 Center on Philanthropy Panel Study / Panel Study of Income Dynamics.

<sup>127</sup> See Brooks, Arthur. 2006. *Who Really Cares*, Chapter 2.

<sup>128</sup> 2004 General Social Survey. Gallup. November 30, 2007. "Republicans Report Much Better Mental Health Than Others". <http://www.gallup.com/poll/102943/Republicans-Report-Much-Better-Mental-Health-Than-Others.aspx>

<sup>129</sup> When we regress charitable giving on political beliefs, religious behavior, family structure, and other demographics, the difference between liberals and conservatives becomes statistically insignificant.

<sup>130</sup> 2004 General Social Survey.

<sup>131</sup> 2000 SCCBS.

## 5. Special Topics: The Role of Freedom and Control in Explaining Happiness

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### 5.1 Introduction

The question of what makes people happy has puzzled human beings since ancient times but it is only very recently that hard data on happiness and quantitative research into the causes of happiness have emerged. Initially considered as a peripheral area of economics, happiness research is now becoming more popular and mainstream.

This paper fits into this recent tradition and explores further the possible causes of happiness. Making use of a very large world database, we questioned the data in an effort to isolate predictors of happiness which could be considered as universal, i.e. predictors that appear to be always significant across heterogeneous countries and across heterogeneous individuals. We find only one predictor with these features. This is a variable that measures freedom of choice and control over the outcome of one's own choices.

Drawing from research in economics and psychology, the paper provides a framework and a possible explanation of why a variable which measures jointly freedom and control can be so powerful in explaining happiness.

Our hypothesis is that the appreciation of freedom of choice depends on the degree of control that individuals think to have over the outcome of their own choices, a concept known in social psychology as the 'locus of control'. Control over choice may act as a *regulator* of how people appreciate freedom. The more control we think we have over our own choices the more we appreciate and exploit freedom of choice. In one sentence, freedom is nothing without control. This paper provides a framework to understand the relation between freedom, control and happiness and some initial evidence on this relation.

The paper is organised as follows. In section II we question the database we dispose of to pinpoint the best predictors of happiness. In section III, we discuss the concept of freedom of choice from the perspective of economics. In section IV we draw on social psychology to propose a possible interpretation of the concept of control and an hypothesis that could explain why control associated with freedom becomes a powerful predictor of happiness. Section V provides a test to the claim that a variable which measures freedom and control jointly actually accounts for both concepts. Section VI concludes by looking at the implications for institutions and public policies.

### 5.2 A Universal Predictor of Happiness?

During the last four decades research across the social sciences has made tremendous progress in pinpointing the elements which seem to explain or predict subjective wellbeing well. The World Database of Happiness, for example, lists hundreds of factors which have been found to be correlated with various measures of subjective wellbeing.<sup>132</sup>

There are a few factors in particular which seem to explain subjective wellbeing consistently across countries and across individuals with different characteristics. There is little controversy, for example, about the fact that poor health and unemployment are associated with lower levels of wellbeing and that factors such as income, marriage and religion are associated with higher levels.<sup>133</sup>

Yet, even the most recurrent predictors of subjective wellbeing do not seem to apply universally and under all conditions. One example is income. People and countries with higher income are generally found to be happier,<sup>134</sup> but this relation is not entirely linear and does not seem to hold over time and over the life-cycle.<sup>135</sup> Over and above a certain level of

income more income 'returns' little extra happiness and rich countries which become richer do not seem to be able to improve average subjective wellbeing. Even the same individuals over their own life-cycle do not seem to increase wellbeing when their own income increases. This paradox has been explained with various theories mainly centred around the role of the reference group and the role of expectations. People value their own income relatively to the income of a self-selected reference group and adjust expectations accordingly.

Is there a universal predictor of happiness? Can we rank predictors of subjective wellbeing in order of importance and are there consistent and universal predictors?

These are questions difficult to address because surveys on happiness within countries are hardly comparable while cross-country studies are often limited in scope. Exceptions to these rules are the European Barometer, the European Values Survey and the World Values Surveys. These are surveys that from their inception have aimed at surveying large numbers of individuals across large numbers of countries making use of the same questionnaire and methodology.

In this paper, we use a combination of all European and World Values Surveys carried out between 1981 and 2004 which have been assembled into a single database freely available on the world wide web.<sup>136</sup> The database is regularly updated and the version we use is a 2006 version which contains 267,870 observations on individuals from 84 countries where each country has been surveyed from a minimum of one to a maximum of four times. Other than its extended coverage, the great advantage of this database is that it contains over 800 variables which can be used as possible predictors of subjective wellbeing ranging from individual and household characteristics to values and social norms. The fact that the survey is administered on individuals and the presence of country and regional variables also allows the researcher to work across individuals, regions or countries which is a convenient feature if the purpose is to study both individual and social welfare.

The database contains several questions on happiness and life-satisfaction which can be used to measure subjective wellbeing. We opted to use the following question on life satisfaction:

*All things considered, how satisfied are you with your life as a whole these days?*

Answers to this question include a ten steps ladder where '1' stands for 'Dissatisfied' and '10' stands for 'Satisfied'. This is a rather standard question used in happiness research worldwide and validation studies carried out across the social sciences have proved that answers are reliable.<sup>137</sup>

We then asked the question of whether we could trace a single variable which, across countries and people, could be considered as the best predictor of happiness. To answer this question we carried out two simple, time consuming but revealing exercises.

The first exercise consisted in taking all possible predictors of life satisfaction present in the database one by one, measure the covariance with life satisfaction and rank all variables according to their explanatory power. This was done running a bivariate OLS regression between the life satisfaction variable and each of the possible predictors across the pooled world sample of individuals which amounted to more than 800 separate regressions. From the results of each equation we extracted the R-squared (the statistics that measures the proportion of variation in life satisfaction which is explained by the chosen variable). We then ranked variables in decreasing order of the R-squared to find the best predictors of life satisfaction.

Results of this first exercise were as follows. In the top ten positions of the ranking we found, as expected, a number of proxies of life satisfaction such as happiness or satisfaction with income, family or job. These were all variables which we can safely exclude as predictors of happiness because they are measures of happiness themselves. They are either proxies or components of life satisfaction.

The first non proxy variable occupied the 7th position in the overall ranking and was a variable which recorded the answers to the following question:

Please use this scale where 1 means 'none at all' and 10 means 'a great deal' to indicate how much freedom of choice and control you feel you have over the way your life turns out.

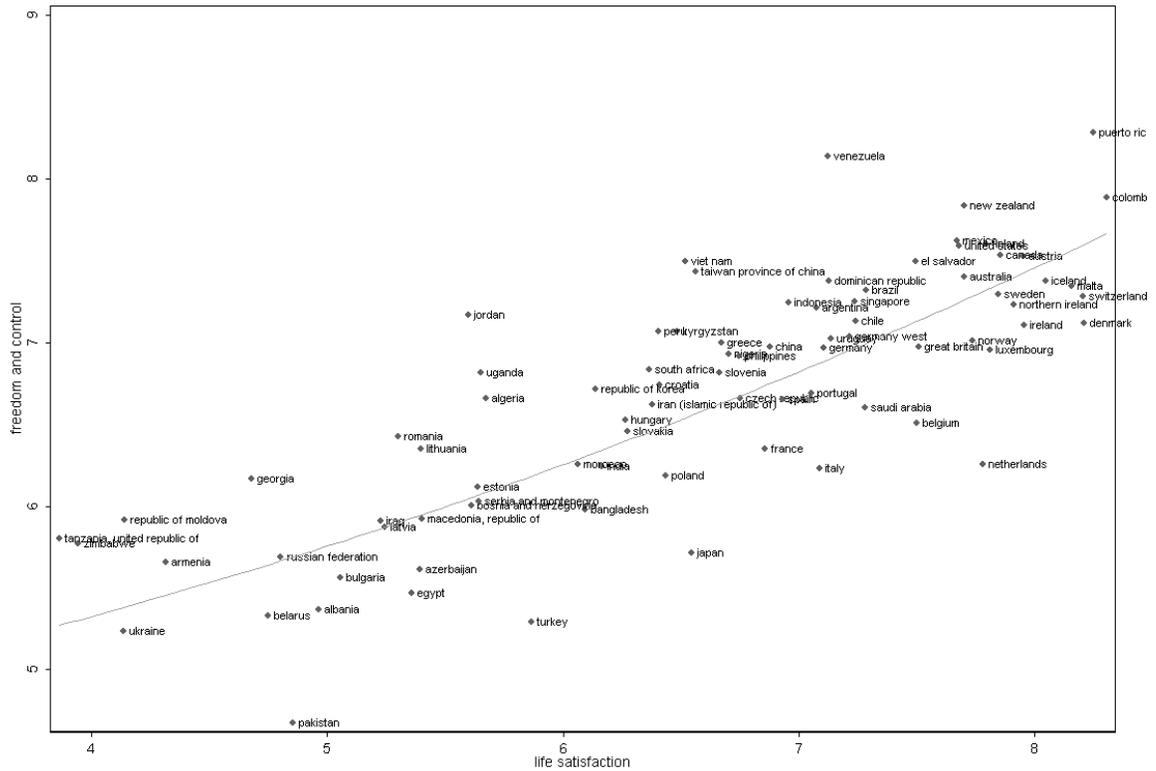
This is a variable which has been used before in happiness studies<sup>138</sup> but which received very little attention as compared to many other predictors of happiness. We will call this variable '*freedom&control*'.

In our ranking, the best known predictors of happiness all featured in high positions but far lower than the variable *freedom&control*. For example, subjective health occupied the 15th place and income rank the 25th place.<sup>139</sup> However, *freedom&control* had an R-squared of 0.165 as compared to a value for subjective health of 0.087 and of 0.041 for income rank. *Freedom&control* seemed to explain life satisfaction twice as well as subjective health and four times as well as income rank.

We initially thought that results might have been affected by the different samples of the different variables. Not all variables were observed in all countries and all years. However, all the main variables described had more than 200,000 observations and the variable *freedom&control* could count on almost 250,000 observations, the quasi-totality of the full sample.

The bivariate relation between life satisfaction and *freedom&control* holds not only across the pooled world sample of individuals but also across countries. This can be appreciated by plotting average life satisfaction by country against average *freedom&control*. This is done in Figure 5.1 below where we also trace a quadratic interpolation of the data. As it can be seen, the relation between life satisfaction and *freedom&control* holds across countries and is clearly linear. Countries with higher average levels of *freedom&control* are also countries that, on average, are happier. The variable *freedom&control* seems to be able to explain well both individual and social welfare.

**FIGURE 5.1. LIFE SATISFACTION VS. *FREEDOM&CONTROL***



These initial findings led us to our second exercise. This consisted in selecting a set of good predictors of happiness and test their importance jointly together with a number of variables that could control for individual and country characteristics. For this purpose, we used the results of the bivariate regressions carried out before and the literature on happiness to select among all variables we disposed of a set of best predictors of life satisfaction. To make sure that our results would be representative for most countries, we restricted the choice of variables to those that had a minimum of 200,000 observations in the database.

The final choice of variables included the following variables: *freedom&control*, income rank, status of unemployed, gender, age, tertiary education, married status, attitudes towards tax cheating, trust in people, trust in institutions, importance of family, importance of work, importance of religion, importance of politics and controls for years and countries. We could then test the importance of the variable *freedom&control* vis-a-vis other variables and controlling for individual and country heterogeneity.

Using the set of variables described, we carried out first a multivariate regression pooling again all observations from all countries together. We then repeated the exercise separately for each country present in the database, which disposed of all the variables described. This was a set of 74 countries out of a total of 84 countries present in the original database.

The full results for all equations cannot be shown here. However, table A1 in the annex shows the full results for the pooled world sample while table A2 shows the full results for ten selected and representative countries. All regressions were estimated using the most restrictive of the specifications, with year and country dummies, robust standard errors and regional clusters. Table 5.1 below summarises the results.

On the left hand side of table 5.1 we show the summary results for the pooled world regression (table A1). For simplicity, we ranked all explanatory variables used in the regression in order of the z-score. In general, if a variable shows a z-score above three it is considered significant and the greater the z-score the more significant the variable. As it can be seen, all variables selected for the equation are significant and *freedom&control* is, by far,

the most significant variable. This variable is followed by age, marriage, religion and trust in institutions.

Note that the pooled sample includes country specific variables including GDP per capita and the employment rate. GDP per capita also ranks high in the table.<sup>140</sup> In particular, if we look at table A2 where countries have been ordered from left to right in decreasing order of GDP per capita, we can notice that the explanatory power of *freedom&control* decreases as GDP per capita decreases. This is a point we will come back to in the concluding section of this paper.

On the right hand side of table 5.1 we show the summary results of the 74 regressions, which we estimated for each country considered (ten selected countries are in table A2). This time we report the number of countries in which each variable is significant and also whether the variable is significant with a positive or negative sign. Variables are ranked according to the number of times they are significant and with a positive sign. As before, *freedom&control* ranks first. This variable is significant and with the same sign in all countries considered with no exceptions. The second variable in terms of importance is marriage which is always significant and with a positive sign but only in 54 countries. This is followed by trust in institutions, age and religion.

**TABLE 5.1. PREDICTORS OF HAPPINESS: SUMMARY OF RESULTS**

Pooled World Sample		Country Samples (No. of countries)			
	z-score	Sign:	(+)	(-)	Tot.
freedom and control	37.6	freedom and control	74	0	74
age squared	17.4	married	54	0	54
Married	16.4	trust in institutions	48	1	49
religion importance	13.3	age squared	43	0	43
trust in institutions	10.2	religion importance	36	3	39
gdp (000)	10.2	trust in people	30	0	30
family importance	8.8	income rank	29	2	31
income rank	7.8	family importance	23	2	25
work importance	6.4	female	20	2	22
trust in people	6.2	edutert	18	11	29
Female	4.9	work importance	11	5	16
Edutert	4.8	income rank squared	7	10	17
employment rate	2.9	politics importance	4	6	10
politics importance	-3.0	unemployed	3	43	46
gdp squared (000)	-3.7	age	1	57	58
Employment rate squared	-3.7	tax cheat	1	27	28
income rank squared	-4.8				
tax cheat	-9.4				
Unemployed	-16.9				
Age	-20.3				

The strength of these findings may raise the suspicion that the variable *freedom&control* is, after all, a proxy for happiness, a variable that measures happiness itself. The first obvious answer to this question is that the two questions posed to respondents are very different as

shown by the text of the questions. Yet, answers to both questions are measured on a scale from one to ten and some or most respondents may feel that the two concepts overlap.

A more formal test of this hypothesis implies comparing how a set of common variables performs in explaining life satisfaction and *freedom&control* separately. For this purpose, we repeated the estimations we made for life satisfaction in table A1 swapping the place of life satisfaction and *freedom&control* (i.e. using *freedom&control* as the dependent variable and life satisfaction as an explanatory variable) and keeping the rest of explanatory variables as in table A1.

Results are shown in table A3. If we compare the coefficients and the z-score of each variable between tables A1 and A3 we can see that 10 of the 19 variables considered change sign in the *freedom&control* equation and four of the remaining variables turn from significant to non significant. We can therefore exclude that the variables life satisfaction and *freedom&control* measure the same concept or are understood by respondents as the same question.

In the next two sections we propose a framework which can help to understand what the variable *freedom&control* actually measures and to explain why such a variable may have such a powerful role in explaining life satisfaction.

### 5.3 Freedom of Choice

We have seen that the question addressed to respondents really captures two aspects. One is 'freedom of choice' and the second is 'control you feel you have over the way your life turns out'. In this section we look more in detail at the concept of freedom of choice. The next section will address the question of control.

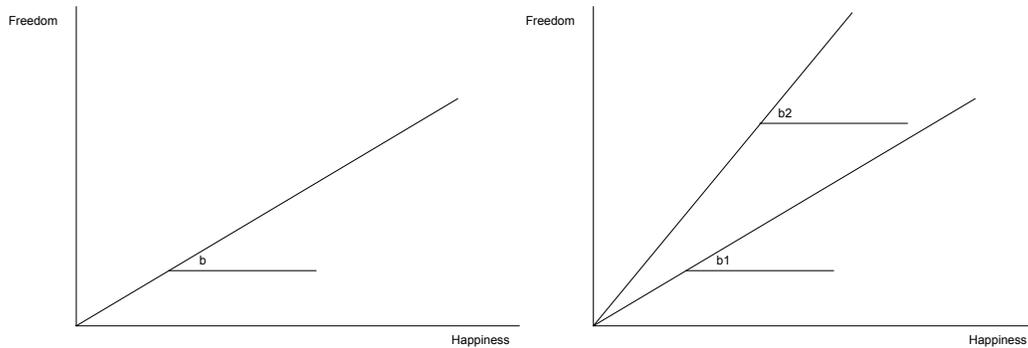
What is freedom of choice and how do people value freedom of choice? We could simply define freedom of choice as the opportunity to choose among different alternatives. How people value this opportunity is a matter of dispute.

Economics has provided different hypotheses on how people may appreciate freedom of choice. Orthodox economic theory would argue for example that freedom or the number of alternatives in a choice set is not very important per se. It is important because more choice increases the likelihood of finding the choice that maximises utility. What matters, however, is that the set of alternatives contains the option which maximises utility. If my preferred cake is a chocolate cake, I will not maximise my satisfaction if I can choose among 100 different cakes with no chocolate inside. On the contrary I can maximise my utility even with a single choice option if this choice is a chocolate cake. This view generally considers individuals identical, all with the same tastes.

A second view is that more choice is always good and this applies universally and in a uniform way to all individuals. According to this view, all people and irrespective of individual characteristics, would appreciate more freedom even if they do not make use of freedom. This is a recurrent view for example of liberalists, anarchists or politicians who wish to ride the freedom political horse. This relation could be simply depicted as a linear relation between freedom and happiness as shown in the left panel of Figure 5.2 below.

A third view is that freedom of choice is always good but people are different and have a different appreciation of freedom of choice. One example would be Sen's capability theory where freedom of choice contributes to define utility in a world of heterogeneous individuals. In this case, individuals are different in preferences and an increase in choice has a different impact on individuals but this impact is always positive. More freedom is always better. This is illustrated in the right panel of Figure 5.2 where the relation between happiness and freedom is linear for both individuals 'b1' and 'b2' but the slope (the elasticity) of the relation is different. As freedom increases, individual 'b1' will always be able to 'extract' more happiness from an increase in freedom than individual 'b2' and will be happier than 'b2' at each level of freedom.

#### FIGURE 5.2. HAPPINESS AND FREEDOM ACCORDING TO DIFFERENT VIEWS



A further view is that preferences for freedom of choice change across individuals so that increasing the choice set may have positive or negative consequences on happiness. Various explanations have been offered for such kind of attitude. One is that enlarging the choice set leads to an increased computational cost for individuals so that at some point individuals self-restrict the choice problem to be able to take a decision. In economics, this is the well known concept of bounded rationality pioneered by Simon. Others have argued that increasing the choice set increases the likelihood of disappointment for choosing a wrong alternative (Bell 1985) or the regret for foregone options (Bell 1982). Indeed, various experiments have shown that consumers may be adverse to excessive choice. For example, Iyengar and Lepper, and Jiang and Huberman, have shown that some consumers prefer not to make a choice if the choice set is too large.

These last explanations of why some individuals may not favour an increase in the choice set have to do with the degree of control that individuals can exercise on choices or the outcome of choices. The increase in computational costs or the increase in regret for foregone options leads to a loss of control over choice which leads to an incapacity to make a choice. One simple example of this phenomenon is the menu in a restaurant. Few options may not satisfy our taste but too many options may lead to an incapacity to decide what to order.

The next section turns to the second component of our *freedom&control* variable, the question of control. We put forward an hypothesis about what control may actually be, how it is measured and how may relate to freedom.

## 5.4 Freedom with Control: the 'Sails' Hypothesis

Social psychologists have offered one interesting way to interpret and measure control. They argue that people have different perceptions about the degree of control that they have over choice. Rotter, for example, has distinguished between people who attribute the outcomes of their actions to internal factors such as choices made and own capacities (the 'internals') and people who tend to attribute the outcome of their actions to external factors such as fate or destiny (the 'externals'). This concept is known as the 'locus of control'. Experiments on university students have shown how individuals can be clearly separated into these two groups and Rotter has devised a scale (known as the Rotter scale) to rank individuals according to the degree of control that they think they exercise over choice. According to this view, control is an individual feature and part of personality. Internals are believed to exhibit particular attitudes such as high motivation for achievement and low outer-directedness as opposed to externals whose motivation is reduced by the conviction that the outcome of their life is driven by factors beyond their control.

How does control defined in these terms relate to freedom of choice? Our hypothesis is that control acts as a *regulator* of the intrinsic value that people attribute to freedom of choice. The more control we think we have over choice the more freedom of choice we can handle and the more satisfaction we will derive from freedom of choice. The 'internals', those who think that they have strong control over the outcome of their choices, should attribute more importance to and extract more value from freedom of choice than the 'externals', those who think that life is really driven by factors outside their own control.

If this is the case, we should also expect individuals to value freedom differently and maximise the happiness extracted from freedom at different levels of freedom. As freedom of choice expands, internals should value this more and reach a higher level of happiness and utility than externals. We also expect all individuals to become freedom averse at some stage when the individual valuation of the costs attached to more freedom outweigh the benefits.

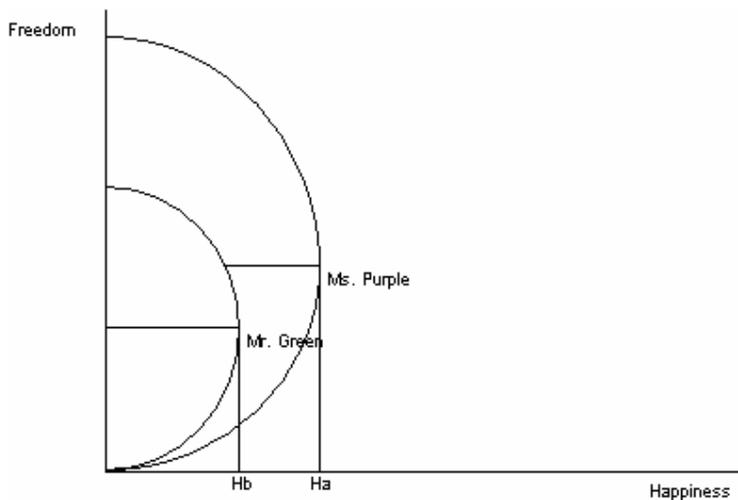
A simple analogy may illustrate the point. Imagine juggling with balls. Some people are clearly better than others the first time they try juggling but everyone starts with one ball and then progressively graduates to more balls with training and practice. Eventually, all people will reach a limit beyond which more practice and training will not turn into more balls. The point where, by adding an extra ball, the juggling invariably fails. This is the point where we lose control over juggling and where one extra ball reduces rather than increases our performance.

This is similar with choice. Some people can deal with more simultaneous options than other people and, in general, all people can improve the number of choices they can handle with training and practice. However, at some stage, everyone reach a limit beyond which more choice will result in no choice or decreased satisfaction or performance. This is the point where we lose control over choice. We argue that this point may be different for 'internals' and 'externals'.

We can illustrate this hypothesis with a graph (Figure 5.3) and describe it with another analogy. We should think of people as sailing boats, freedom as the wind in the ocean, control as the size and strength of the sails and happiness as the speed of the sailing boat. The stronger is the wind the faster the boat can go. A boat (person) with larger and stronger sails (control) will be able to go faster and further (happiness) but eventually any sail will reach its breaking point (maximum), beyond which speed (happiness) will inevitably decrease.

Suppose that we have two people, Mr. Green and Ms. Purple. Mr. Green is an 'external' who values his own choices little and, we argued, has a low appreciation of freedom. Ms. Purple is an 'internal' who values her own choices greatly and, we argued, has a high valuation of freedom. Despite these differences, both Mr. Green and Ms. Purple will reach a level beyond which more freedom turns into less happiness rather than more. This is the point where maximum happiness is reached. But Ms. Purple who is endowed with more control than Mr. Green will be able to exploit freedom better and reach highest levels of happiness.

**FIGURE 5.3. HAPPINESS AND FREEDOM WITH DIFFERENT FLAVOURS OF CONTROL**



This hypothesis which we will call the 'Sails' hypothesis implies that the value that people attribute to freedom of choice cannot be assessed simply by looking at freedom of choice but must be assessed by looking at freedom of choice *in conjunction with* control. If control is not measured we cannot really assess how freedom turns into happiness. Indeed, our database

contains various variables, which measure different aspects of individual and collective freedoms but none of these variables score as high as the *freedom&control* variable. In our view, this could explain why a variable that measures both freedom of choice and control *simultaneously* is such a powerful predictor of life satisfaction.

The 'Sails' hypothesis can also be extended from individuals to nations, from individual to social welfare. Most scientists would agree that personality is a product of genetics and of social upbringing and that social upbringing has to do with public policies. As countries differ in terms of genetic stocks, family values, educational systems and public policies, we should also expect countries to rank differently on the Rotter scale so that we could talk of 'internal' as opposed to 'external' countries. Such a finding would have important implications for public policies, which determine changes in collective and individual freedom of choice.

## 5.5 Freedom and Control

So far, we have measured freedom and control in conjunction and also argued that it is this interaction that delivers a powerful predictor of life satisfaction. However, we have no evidence thus far that the variable *freedom&control* really captures both aspects of freedom and control and not just one of them. We now make an effort to split these two concepts into two separate measures and see the contribution of each measure to the aggregated variable *freedom&control*.

The database we use does not contain direct measures of freedom of choice or direct measures of control in the Rotter sense. We have therefore to either import direct measures from other databases or construct proxies of freedom and control from within the database we use.

For freedom, we do have in our database a few variables which measure partial freedoms such as freedom of choice on the job but these variables cannot be taken as full measures of freedom of choice and they are available only for selected countries and selected years. We opted therefore to import in our database a measure of freedom constructed by other sources and for this purpose we selected the economic freedom index developed by The Heritage Foundation. This is an index which has been estimated for a number of years and puts together the scores given to several dimensions of economic freedom including business, trade, fiscal, government, monetary, investment, financial, property, corruption and labour freedom. Full information on this index can be found on the website of the foundation.<sup>141</sup> As the Index is calculated for countries and years we take this measure as a measure of collective rather than individual freedom of choice. We should also consider that this measure is limited to economic aspects whereas freedom of choice extends well beyond economics.

As a proxy of control, which is primarily an individual feature of personality, we could instead rely on several variables present in our database that could be taken as indicators of an 'internal' or 'external' personality. In particular, we selected two variables which we thought represent well the 'internals' and two variables which we thought could represent the 'externals'. To make sure that freedom of choice would relate to both the family and work spheres, we extracted two variables from the family sphere and two variables for the work sphere.

The choice of these variables was mainly driven by the description of the 'internal' and 'external' personalities provided by Rotter's seminal paper (1966) and by the literature that followed on the locus of control. 'Internals' tend to be individuals with an outer personality, a strong will to achieve, independent thinking and self-confidence as opposed to 'externals' who prefer to delegate responsibility, follow orders and go with the crowd. In our database, respondents were questioned about the important values that children should have. Among these values, we picked independence as a proxy for respondents with an 'internal' personality and obedience as a proxy for respondents with 'external' personality. Respondents were also asked about important characteristics in a job and we picked opportunity to use initiative as a feature that would be preferred by 'internals' and follow instructions at work as a feature that would be preferred by 'externals'. The matrix below summarises our choices.

	Family sphere	Work sphere
Internals	Important child quality: Child Independence	Important in a job: Opportunity to use initiative
Externals	Important child quality: Child obedience	Important in a job: Follow instructions at work

To test whether the *freedom&control* variable is effectively correlated with both aspects of freedom and control, we repeated the multivariate equation already used in table A3 where the dependent variable is *freedom&control* and introduced as new explanatory variables the five variables described, one for freedom and four for control. Summary results are shown in table 5.2 below.

Economic freedom is positively correlated with *freedom&control* despite the fact that this variable comes from an outside source and is measured aggregated by country (variance and standard errors are more limited which makes it more difficult to find an association with a variable measured at the individual level). The variables used to describe the internals are both significant and with the expected positive sign. Instead, among the variables used to describe the externals only 'job instructions' is significant and with the expected negative sign. With the exception of 'child obedience', the variables selected would confirm that both the aspects of freedom and control are captured by the variable *freedom&control*.

**TABLE 5.2. FREEDOM&CONTROL EQUATION**

		Coeff.	Std. Err.	z-score
Freedom	economic freedom	0.0179	0.0044	4.07
Internals	child independence	0.0637	0.0121	5.28
	job initiative	0.1376	0.0118	11.71
Externals	child obedience	-0.0073	0.0131	-0.56
	job instructions	-0.0456	0.0121	-3.77
Controls	(omitted)			

## 5.6 Institutions and Public Policies

We have already observed that variables such as marriage, religion and trust always rank among the top positions in a life satisfaction equation. These are all factors that help to increase the likelihood of being happy. These variables also describe some of the fundamental institutions of any society.

In this section, we want to explore briefly how these and other fundamental institutions of a society affect the way individuals value freedom and control. We have seen that many of the variables that explain life satisfaction well do not explain *freedom&control* well despite the fact that life satisfaction and *freedom&control* have a consistent linear relation.

For this purpose, we return to the multivariate equation which we already estimated for the pooled sample of world citizens and look more closely at how institutional variables behave in a life satisfaction equation vis-à-vis a *freedom&control* equation. Results are shown in table A4.

The first four variables depict how individuals value family, work, religion and politics. Individuals that consider family important have also higher degrees of life satisfaction whereas these same individuals do not seem to enjoy a higher degree of *freedom&control*. The variable 'married' reinforces this dichotomy. People who are married tend to be happier while they tend to enjoy less *freedom&control*. This is intuitively correct as married people

enjoy less individual freedom and they may also feel less in control of life because of the responsibilities associated with dependants such as spouses and children.

The same phenomenon is visible with religion and politics although with opposite signs. People who value religion greatly are happier but enjoy less *freedom&control*. This is again expected as religion may imply duties and values which restrict self-freedom. On the contrary, people who value politics greatly tend to be less happy, a finding well known among happiness researchers.<sup>142</sup> However, they also tend to exhibit higher levels of freedom and control which is less well known. Work instead does not distinguish happy from free people. People who value work tend to be happier and also enjoy more freedom and control.

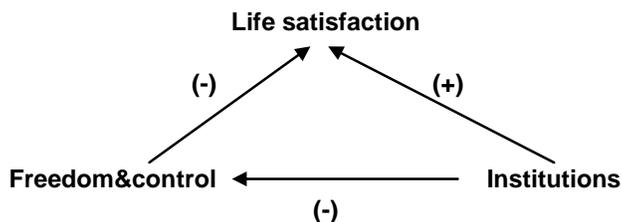
Two other variables we use depict trust in people and trust in institutions. These are variables which have been used in the past to measure social capital and that have been found to be positively correlated with happiness.<sup>143</sup> We also find that both variables increase the likelihood of being happy. We also find that both variables are associated with increased levels of *freedom&control*.

Another variable which can be considered as a fundamental institution is education. We only have a variable which indicates if respondents had tertiary education. This variable is positively and significantly correlated with both life satisfaction and *freedom&control*.

Three variables measure individual economic attributes including unemployment and income rank. These three variables are all significant and with the expected sign in the life satisfaction equation but they are all non significant in the *freedom&control* equation. Unemployment reduces happiness but does not seem to have a great effect on *freedom&control* while income rank increases happiness without again any relevant impact on *freedom&control*. For the unemployed we may think that they enjoy more freedom with time but probably less choice on other fronts. Income instead generally provides more freedom of choice in many domains such as consumption but not in others such as responsibilities.

Individual characteristics also account for the diversity in the life satisfaction and *freedom&control* equation. In particular, being female which is associated with higher happiness is also associated with lower degrees of freedom and control. This is not surprising and may well be associated with domestic cores and family responsibilities.

These findings are important for public policies because if we try to improve an institution which we know is positively correlated with happiness we may not actually improve happiness as much as we would think if this same institution has a negative association with *freedom&control*. The size or even the sign of the impact on life satisfaction will depend on the balance between the positive direct effect of institutional improvements and the negative indirect effect via *freedom&control* as shown in the chart below.



If the improvement of life satisfaction was an objective for governments, then one implication of this research is that improving life satisfaction does not pass simply through the improvements of institutions and freedom of choice but it is also related to improvements in the capacity of individuals to control and value such changes.

For example, and according to our findings, improving trust among people and between people and institutions can only be seen as a positive development given that an increase in both types of trust are associated with increased happiness and increased *freedom&control*. *Freedom&control* in this case reinforces the direct effect that better trust has on happiness. The same can be said for tertiary education and work values. Improvements in these areas can effectively lead to higher happiness in society via both direct and indirect effects. These are win-win policies from the perspective of happiness.

Indeed, governments are fully aware of how important policies are such as education in shaping people's values and personalities. Take two examples, Japan and Italy. Japan has long used education as a means to instill in pupils values such as obedience and respect. More recently, Japan has been reconsidering some of its educational policies trying to foster the development of creativity and initiative. Italy, on the other hand, has for long being a country which encouraged creativity and paid less attention than Japan to values such as obedience and respect in its educational system. However, the country is now reconsidering its educational system, which is seen to be as too permissive. All countries try actively to shape their children personalities by managing the value system in schools and these policies may have an impact on how adults will be able to master and value freedom of choice.

On the other hand, public policies which focus on other institutional aspects such as marriage, religion or political orientation may not be so powerful in delivering happiness as they may have negative effects on freedom and control and, through this variable, reduce the positive effect that these factors have on happiness.

Moreover, this phenomenon may grow as countries develop. If we consider that economic development is generally associated with improvements in the educational systems, democratic reforms, citizens' participation in public life and a reduction of the role of family and religion, we should expect citizens in rich nations to have a stronger degree of control over choice and a better appreciation of freedom of choice. This brings us back to one of the first observations we made in this paper about the relation between the significance of the variable *freedom&control* in explaining life satisfaction and GDP per capita.

In Figure 5.4 we plot these two variables against each other for the sample of countries we used in this study. On the y-axis (the left hand side) we have the coefficient of the variable *freedom&control* extracted from the multivariate equations which we presented in tables 5.1 and A2. On the x-axis (bottom of the chart) we have average GDP per capita at Purchasing Power parity for each country observed.<sup>144</sup> Therefore, what we observe in the figure is how well *freedom&control* explains life satisfaction as GDP per capita increases.

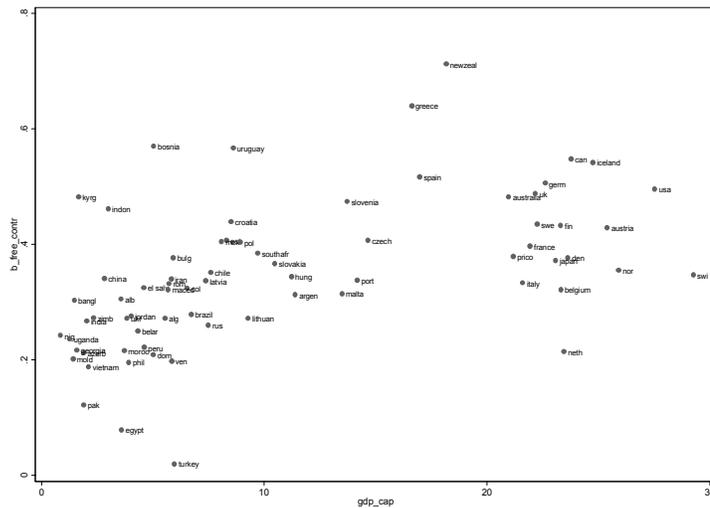
We can see some clear patterns in the figure. The first is that the relation between the explanatory power of *freedom&control* and GDP per capita is positive. In richer countries the variable *freedom&control* predicts life satisfaction better than in poorer countries. This is also what we observed in table A2. For a one step change in the *freedom&control* variable, life satisfaction changes by in between 40% and 50% of a step for rich countries and in between 20% and 30% of a step for poor countries.

The second pattern is that the richest nations of Europe and North-America form a block on their own around high levels of GDP per capita and not so high levels of the explanatory power of *freedom&control*. This suggests that the relation between the two variables is not entirely linear. As GDP per capita reaches high levels the explanatory power of *freedom&control* increases but at a lower pace (decreasing marginal returns). This could be interpreted as richer countries having reached a sort of maturity or equilibrium where it is difficult to increase freedom further without compromising on happiness.

On the other hand of the spectrum we have countries such as Pakistan, Egypt and Turkey with relatively low levels of GDP per capita and a very low impact of *freedom&control* over life satisfaction. These may be seen as countries in an early stage where increasing freedom would not necessarily lead to more life satisfaction.

In between the two extremes we find the emerging economies of various parts of the world which seem to show a positive and linear relation between the two variables. The richer a country becomes, the more powerful is *freedom&control* in explaining life satisfaction. For these countries the relation seems linear. Improvements in *freedom&control* go hand in hand with improvements in GDP per capita. In summary, *freedom&control* is an always powerful predictor of life satisfaction worldwide but the explanatory power varies according to countries' level of development.

**FIGURE 5.4. THE EXPLANATORY POWER OF *FREEDOM&CONTROL* BY GDP PER CAPITA**



Perhaps the main lesson that we can draw from this paper is that it is not sufficient to increase freedom to improve life satisfaction. It is also necessary for a country to equip its citizens to make full use of such freedoms by devising policies that help individuals to increase their degree of control over the outcome of their own life. When or where the role of internal control is weak traditional institutions such as marriage and religion can effectively replace or complement the role of control in delivering happiness. As countries develop stronger alternative institutions such as education and work and equip citizens with stronger degrees of control, the role of more traditional institutions such as family and religion is progressively replaced in the public discourse.

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<sup>132</sup> Veenhoven, Ruut. 2007 World Database of Happiness, Correlational Findings: <http://worlddatabaseofhappiness.eur.nl>

<sup>133</sup> Wilson, 1967; Veenhoven, 1996; Diener et Al., 1997; Clark and Oswald, 1994; Blanchflower and Oswald, 1997; Winkelmann and Winkelmann, 1998.

<sup>134</sup> Blanchflower and Oswald, 2000; Di Tella, MacCulloch and Oswald, 2001; Inglehart, 1990; Diener et Al., 1995.

<sup>135</sup> Easterlin, 1974, 1995, 2001; Diener et Al., 1999; Veenhoven, 1993; Mangahas, 1995; Ravallion and Lokshin 2000; Clark and Oswald 1994.

<sup>136</sup> Values surveys 1981-2004, integrated questionnaire version 20060423. Data can be freely downloaded from: <http://www.jdsurvey.net>. We are grateful to the Values Study Group and World Values Survey Association for creating and making accessible the EUROPEAN AND WORLD VALUES SURVEYS FOUR-WAVE INTEGRATED DATA FILE, 1981-2004, (v.20060423, 2006). Aggregate File Producers: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tilburg University, Tilburg, The Netherlands. Data Files Suppliers: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tilburg University, Tilburg, The Netherlands/ Zentralarchiv für Empirische Sozialforschung (ZA), Cologne, Germany). Aggregate File Distributors: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tilburg University, Tilburg, The Netherlands /Zentralarchiv für Empirische Sozialforschung (ZA) Cologne, Germany.

<sup>137</sup> Lepper, 1998; Sandvik, Diener and Seidlitz, 1993; Fordyce, 1988; Inglehart, 1990; Saris and Scherpenzel, 1996.

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<sup>138</sup> Veenhoven, 2000.

<sup>139</sup> Income is measured as self-positioning in a ten-step income scale where the income brackets have been measured in local currency in each country. This is not self-perceived income but the positioning of individuals into income brackets. In some sense, this is a more accurate indicator than self-reported income which is known to be underreported in household surveys worldwide. That is because people are not asked to tell how much they earn but simply to say to which income brackets they belong to. We call this variable 'income rank' because it measures rank rather than actual income. No measure of monetary income was present in the database.

<sup>140</sup> GDP per capita is extracted from the World Bank World Development Indicators database. This measure is estimated in USD equivalent at Purchasing Power Parity.

<sup>141</sup> <http://www.heritage.org/Index/>

<sup>142</sup> Alesina et Al., 2004.

<sup>143</sup> Helliwell, 2003.

<sup>144</sup> This is the average for all years observed in each country given that for each country we may have in between one and four years.

Table A1 - Life Satisfaction Equation - Pooled World Sample (\*)

		Coef.	Std. Err.	z
Freedom and Control	freedom and control	0.362	0.010	37.6
Individual Economic Status	income rank	0.164	0.021	7.8
	income rank squared	-0.008	0.002	-4.8
	unemployed	-0.431	0.026	-16.9
Individual Characteristics	Female	0.052	0.011	4.9
	Age	-0.054	0.003	-20.3
	age squared	0.001	0.000	17.4
	Edutert	0.105	0.022	4.8
	Married	0.292	0.018	16.4
Individual Social Attitudes	tax cheat	-0.033	0.004	-9.4
	trust in people	0.127	0.021	6.2
	trust in institutions	0.212	0.021	10.2
Individual Values	family importance	0.351	0.040	8.8
	work importance	0.142	0.022	6.4
	religion importance	0.302	0.023	13.3
	politics importance	-0.047	0.016	-3.0
Country Economic Status	gdp (000)	0.064	0.006	10.2
	gdp squared (000)	-0.001	0.000	-3.7
	employment rate	0.016	0.006	2.9
	employment rate squared	0.000	0.000	-3.7

(\*) Ordered logit estimations with robust standard errors, regional cluster and year fixed effects.

Table A2 - Life Satisfaction Equations - Selected Countries (\*)

	USA	Canada	Germany	Spain	South-Africa	Mexico	Russia	China	India	Nigeria	Signif. (#)	Change sign if signif.?
freedom and control	0.496	0.548	0.506	0.517	0.385	0.405	0.260	0.341	0.267	0.242	10	no
	(26.76)**	(27.96)**	(21.11)**	(29.99)**	(9.26)**	(5.92)**	(19.14)**	(10.34)**	(6.57)**	(13.00)**		
income rank	-0.039	0.017	0.055	0.186	0.44	0.112	0.062	0.169	-0.029	-0.053	2	no
	-0.81	-0.31	-1.15	(3.64)**	(10.59)**	-1.23	-0.84	-1.71	-0.21	-0.57		
income rank squared	0.01	0.001	-0.002	-0.01	-0.026	-0.006	0.003	-0.001	0.016	0.02	4	yes
	(2.76)**	-0.16	-0.44	(2.13)*	(6.85)**	-0.86	-0.55	-0.09	-1.14	(2.38)*		
unemployed	-0.268	-0.559	-1.432	-0.586	-0.539	0.09	-0.37	0.286	-0.165	0.019	6	no
	(2.08)*	(3.63)**	(12.69)**	(7.27)**	(6.72)**	-0.38	(3.51)**	-1.33	-1.42	-0.2		
female	0.002	0.045	0.129	-0.036	0.064	0.167	-0.019	0.188	0.055	0.168	4	no
	-0.03	-1.84	(2.41)*	-0.94	-1.14	(2.12)*	-0.21	(2.24)*	-1.31	(2.72)**		
age	-0.026	-0.042	-0.049	-0.06	-0.062	-0.062	-0.064	-0.06	-0.005	-0.065	9	no
	(2.46)*	(4.28)**	(6.15)**	(5.55)**	(6.86)**	(2.82)**	(3.91)**	(3.82)**	-0.38	(6.43)**		
age squared	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.00	0.001	9	no
	(3.07)**	(5.58)**	(5.92)**	(5.05)**	(6.30)**	(2.82)**	(3.41)**	(4.05)**	-0.25	(6.37)**		
edutert	0.002	-0.121	0.252	0.253	-0.14	-0.068	0.335	-0.001	0.127	0.253	6	yes
	-0.02	(2.29)*	(2.59)**	(2.71)**	(2.81)**	-1.23	(4.48)**	-0.02	-1.88	(5.04)**		
married	0.589	0.691	0.506	0.554	0.302	0.35	0.29	0.509	0.118	0.217	9	no
	(5.15)**	(11.61)**	(9.61)**	(7.54)**	(5.43)**	(6.18)**	(4.02)**	(4.76)**	-1.76	(3.19)**		

tax cheat	-0.058	-0.013	-0.02	-0.029	-0.022	-0.049	-0.001	-0.094	-0.029	0.014	5	no
	(5.16)**	-0.88	(2.11)*	(2.83)**	-1.42	(4.04)**	-0.06	(3.63)**	-1.15	-0.58		
trust in people	0.156	0.054	0.427	0.082	0.193	-0.091	0.22	0.23	0.079	-0.041	4	no
	-1.78	-0.56	(10.30)**	-1.02	(3.00)**	-1.13	(3.43)**	(2.99)**	-0.65	-0.91		
trust in institutions	0.182	0.31	0.416	0.078	0.096	-0.018	0.418	0.337	0.127	0.241	7	no
	(2.20)*	(2.47)*	(4.82)**	(1.98)*	-1.16	-0.43	(6.21)**	(4.02)**	-1.17	(6.04)**		
family importance	0.371	0.58	0.195	0.32	0.315	0.367	0.178	0.274	-0.18	0.215	3	no
	-1.42	(2.97)**	-1.18	-0.96	-1.25	(3.38)**	(2.18)*	-1.24	-0.6	-0.43		
work importance	-0.222	-0.074	0.268	0.251	-0.017	0.3	0.069	0.265	-0.076	0.08	4	yes
	(2.57)*	-0.58	(3.22)**	(2.77)**	-0.17	(2.66)**	-1.21	-1.76	-0.51	-0.58		
religion importance	0.267	0.165	0.165	0.151	0.288	0.064	0.135	-0.119	0.343	0.668	8	no
	(3.76)**	(3.39)**	(2.89)**	(3.05)**	(5.96)**	-0.8	(2.29)*	-1.36	(3.06)**	(4.08)**		
politics importance	0.091	-0.059	0.037	-0.087	-0.1	-0.11	-0.038	0.173	0.03	0.044	2	yes
	-1.66	-1.15	-0.74	-1.74	(2.20)*	-1.42	-0.63	(2.47)*	-0.33	-0.95		
Observations	4071	3104	6016	5521	6848	4344	4980	2755	5053	4321		
Pseudo R-squared	0.08	0.09	0.1	0.08	0.09	0.07	0.05	0.07	0.06	0.04		
gdp/capita PPP (000, aver.)	27.532	23.777	22.611	16.984	9.719	8.086	7.506	2.825	2.045	0.868		

Source: Verme(2007). (\*) Ordered logit estimations with regional clusters and year fixed effects. z statistics in parentheses. \* significant at 5%; \*\* significant at 1%.

Table A3: *Freedom&control* Equation -- Pooled World Sample (\*)

		Coef.	Std. Err.	z
Life satisfaction	life satisfaction	0.376465	0.010364	36.33
Individual Economic Status	income rank	-0.03145	0.013952	-2.25
	income rank squared	0.004364	0.00126	3.46
	unemployed	0.033873	0.022875	1.48
Individual Characteristics	Female	-0.13844	0.012308	-11.25
	Age	0.006239	0.002638	2.36
	age squared	-0.0001	2.56E-05	-4.04
	Edutert	0.148985	0.01917	7.77
	Married	-0.17031	0.016979	-10.03
Individual Social Attitudes	tax cheat	-0.00469	0.003346	-1.4
	trust in people	0.002933	0.014799	0.2
	trust in institutions	0.031143	0.016372	1.9
Individual Values	family importance	0.038149	0.034864	1.09
	work importance	0.147145	0.024255	6.07
	religion importance	0.062641	0.019531	3.21
	politics importance	0.089226	0.014837	6.01
Country Economic Status	gdp (000)	0.017674	0.007116	2.48
	gdp squared (000)	-0.0005	0.000224	-2.25
	employment rate	-0.00625	0.00376	-1.66
	employment rate squared	0.000064	3.39E-05	1.89

(\*) Ordered logit estimations with robust standard errors, regional cluster and year fixed effects.

Table A4: Happiness, *freedom&control* and institutions

	Life satisfaction	Freedom&control
family important in life	0.358	0.029
	(9.86)**	-0.87
work important in life	0.044	0.134
	(2.14)*	(5.85)**
religion important in life	0.19	-0.071
	(14.34)**	(3.66)**
politics important in life	-0.039	0.089
	(3.23)**	(6.32)**
most people can be trusted	0.16	0.046
	(10.94)**	(3.75)**
trust in institutions	0.233	0.054
	(10.14)**	(2.85)**
Married	0.325	-0.142
	(22.50)**	(9.86)**
Unemployed	-0.395	-0.001
	(13.93)**	-0.03
income rank	0.175	0.013
	(9.73)**	-1.19
income rank squared	-0.008	0.001
	(5.02)**	-1.27
Female	0.104	-0.146
	(9.31)**	(13.49)**
Age	-0.054	0.006
	(24.68)**	-1.89
age squared	0.001	0
	(23.98)**	(2.86)**
tertiary education	0.065	0.104
	(3.67)**	(5.61)**
Life satisfaction		0.341
		(17.56)**
Freedom&control	0.315	
	(14.23)**	
year and country dummies (omitted)		
Observations	181105	181105

## 6. Appendix: Gallup World Poll Technical Information

### Question Wording

Category	Question Text
Health	Are you satisfied or dissatisfied with your personal health?
Family Life	If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?
Time for Leisure	Approximately, how many hours of your time yesterday was free time, where you could do what you wanted to do?
Environment	In the city or area where you live, are you satisfied or dissatisfied with the quality of air?
Community Life	Have you done any of the following in the past month? How about Donated money to a charity?
Community Life	Have you done any of the following in the past month? How about Volunteered your time to an organisation?
Equality of Opportunity	Can people in this country get ahead by working hard, or not?
Environment	In (country), are you satisfied or dissatisfied with Efforts to preserve the environment?
Freedom of Choice	In (country), are you satisfied or dissatisfied with Your freedom to choose what you do with your life?

### Survey Details

Country	Data Collection Date (month completed)	Number of Interviews	Sample	Mode of Interviewing	Margin of Error a
Australia	April-07	1205	Nationally Representative	Landline Telephone	3.2
Algeria	February-07	1070	Nationally Representative	Face-to-face	4.5
Argentina	August-07	1000	Nationally Representative	Face-to-face	3.3
Austria	April-06	1004	Nationally Representative	Landline Telephone	3.7
Bangladesh	April-07	1200	Nationally Representative with oversample	Face-to-face	3.3
Belarus	July-07	1114	Nationally	Face-to-face	3.0

			Representative		
Belgium	May-07	1022	Nationally Representative	Landline Telephone	3.7
Belize	October-07	502	Nationally Representative	Face-to-face	4.5
Bolivia	July-07	1000	Nationally Representative	Face-to-face	3.7
Botswana	May-06	1000	Nationally Representative, some areas excluded	Face-to-face	3.4
Brazil	August-07	1038	Nationally Representative	Face-to-face	3.4
Bulgaria	January-07	1003	Nationally Representative	Face-to-face	3.3
Cambodia	August-07	1000	Nationally Representative with oversample	Face-to-face	3.6
Cameroon	June-07	1000	Nationally Representative	Face-to-face	3.4
Canada	September-07	1010	Nationally Representative with oversample	Landline Telephone	4.0
Central African Republic	November-07	1000	Nationally Representative, some areas excluded	Face-to-face	3.4
Chile	August-07	1023	Nationally Representative	Face-to-face	4.0
China	October-07	4238	Nationally Representative with oversample	Face-to-face	2.1
Colombia	July-07	1000	Nationally Representative	Face-to-face	3.5
Costa Rica	September-07	1002	Nationally Representative	Face-to-face	3.2
Croatia	January-07	1000	Nationally Representative	Face-to-face	3.4
Czech Republic	June-07	1072	Nationally Representative	Face-to-face	3.1
Denmark	May-07	1009	Nationally Representative	Landline Telephone	3.5
Dominican Republic	September-07	1000	Nationally Representative	Face-to-face	4.1
Ecuador	July-07	1061	Nationally Representative	Face-to-face	3.1
Egypt	July-07	1024	Nationally Representative	Face-to-face	3.1
El Salvador	September-07	1001	Nationally Representative	Face-to-face	3.1

Estonia	August-07	1001	Nationally Representative	Face-to-face	3.1
Finland	April-06	1010	Nationally Representative	Landline and Cellular Telephone	3.6
France	December-06	1220	Nationally Representative with oversample	Landline Telephone	3.4
Germany	January-07	1221	Nationally Representative with oversample	Landline Telephone	3.1
Ghana	February-07	1000	Nationally Representative	Face-to-face	5.4
Greece	May-07	1000	Nationally Representative	Landline Telephone	3.1
Guatemala	September-07	1000	Nationally Representative	Face-to-face	3.1
Honduras	September-07	1000	Nationally Representative	Face-to-face	3.1
Hong Kong	December-06	800	Nationally Representative	Landline Telephone	3.7
Hungary	May-07	1010	Nationally Representative	Face-to-face	3.5
India	May-07	3186	Nationally Representative with oversample	Face-to-face	3.1
Indonesia	April-07	1000	Nationally Representative	Face-to-face	3.2
Iran	July-07	1004	Nationally Representative with oversample	Face-to-face	3.3
Ireland	May-06	1000	Nationally Representative	Landline Telephone	4.1
Israel	August-07	1001	Nationally Representative	Face-to-face	3.3
Italy	May-07	1008	Nationally Representative	Landline Telephone	3.4
Jamaica	November-06	543	Nationally Representative	Face-to-face	4.5
Japan	August-07	1150	Nationally Representative	Landline Telephone	3.0
Jordan	October-07	1016	Nationally Representative	Face-to-face	3.1
Kazakhstan	December-07	1000	Nationally Representative	Face-to-face	3.7
Kenya	June-07	1000	Nationally Representative, some areas excluded	Face-to-face	4.6

Korea, South	May-07	1000	Nationally Representative	Landline Telephone	3.8
Kuwait	August-06	1000	Nationally Representative of the Arab population	Face-to-face	3.7
Latvia	July-07	1017	Nationally Representative	Face-to-face	3.1
Lebanon	October-06	1000	Nationally Representative	Face-to-face	3.2
Macedonia	January-07	1042	Nationally Representative	Face-to-face	3.6
Malaysia	June-07	1233	Nationally Representative with oversample	Face-to-face	3.0
Mali	June-06	1000	Nationally Representative, some areas excluded	Face-to-face	3.3
Mexico	July-07	999	Nationally Representative	Face-to-face	3.8
Moldova	June-07	1000	Nationally Representative, some areas excluded	Face-to-face	3.2
Mongolia	September-07	1000	Nationally Representative with oversample	Face-to-face	3.5
Morocco	December-07	1042	Nationally Representative	Face-to-face	3.1
Mozambique	July-07	1000	Nationally Representative	Face-to-face	3.4
Namibia	September-07	1000	Nationally Representative	Face-to-face	3.5
Nepal	July-07	1000	Nationally Representative, with oversample	Face-to-face	3.7
Netherlands	May-07	1000	Nationally Representative	Landline Telephone	3.6
New Zealand	February-07	750	Nationally Representative	Landline Telephone	3.7
Nicaragua	September-07	1000	Nationally Representative	Face-to-face	3.1
Nigeria	May-07	1000	Nationally Representative	Face-to-face	3.4
Norway	May-06	1001	Nationally Representative	Landline Telephone	3.8
Pakistan	March-07	1502	Nationally Representative with oversample, some areas excluded	Face-to-face	3.1

Panama	September-07	1000	Nationally Representative	Face-to-face	3.1
Paraguay	July-07	1000	Nationally Representative	Face-to-face	3.3
Peru	July-07	1000	Nationally Representative	Face-to-face	3.7
Philippines	August-07	1000	Nationally Representative with oversample	Face-to-face	3.6
Poland	May-07	1000	Nationally Representative	Face-to-face	3.4
Portugal	September-06	1007	Nationally Representative	Face-to-face	3.9
Romania	May-07	1000	Nationally Representative	Face-to-face	3.6
Russia	May-07	2949	Nationally Representative with oversample	Face-to-face	2.3
Saudi Arabia	July-07	1006	Nationally Representative of Saudi National population	Face-to-face	3.1
Senegal	February-07	1000	Nationally Representative	Face-to-face	3.1
Singapore	May-07	1000	Nationally Representative	Face-to-face	3.6
Slovakia	April-06	1018	Nationally Representative	Face-to-face	3.4
Slovenia	April-06	1009	Nationally Representative	Face-to-face	3.7
South Africa	September-07	1000	Nationally Representative	Face-to-face	3.9
Spain	April-07	1004	Nationally Representative	Landline Telephone	3.3
Sri Lanka	May-07	1000	Nationally Representative with oversample, some areas excluded	Face-to-face	3.7
Sudan	January-08	1000	Nationally Representative, some areas excluded	Face-to-face	3.3
Sweden	July-05	1000	Nationally Representative	Landline Telephone	3.2
Switzerland	May-06	1000	Nationally Representative	Landline Telephone	3.5
Taiwan	November-06	1002	Nationally Representative	Face-to-face	3.6
Tanzania	June-07	1000	Nationally	Face-to-face	4.9

			Representative		
Thailand	August-07	1006	Nationally Representative with oversample	Face-to-face	3.6
Trinidad and Tobago	November-06	508	Nationally Representative	Face-to-face	4.9
Tunisia	March-07	912	Nationally Representative	Face-to-face	3.5
Turkey	May-07	1001	Nationally Representative	Face-to-face	3.5
Ukraine	July-07	1066	Nationally Representative	Face-to-face	4.0
United Arab Emirates	August-06	1013	Nationally Representative of the Arab population	Face-to-face	3.2
United Kingdom	January-07	1204	Nationally Representative, with oversample	Landline Telephone	3.3
United States	August-07	1225	Nationally Representative	Panel	4.1
Uruguay	July-07	1004	Nationally Representative	Face-to-face	3.2
Uzbekistan	June-06	1000	Nationally Representative	Face-to-face	3.3
Venezuela	December-06	1000	Nationally Representative	Face-to-face	3.4
Vietnam	July-07	1018	Nationally Representative	Face-to-face	3.5
Yemen	January-07	1000	Nationally Representative	Face-to-face	3.6
Zambia	July-07	1000	Nationally Representative	Face-to-face	4.9
Zimbabwe	July-07	1000	Nationally Representative	Face-to-face	4.2

a. Margin of error is calculated around a proportion at the 95% confidence level. The maximum margin of error was calculated assuming a reported percentage of 50% and takes into account the design effect. Margin of error calculation:  $\sqrt{(0.25/N)*1.96*\sqrt{DE}}$

## 7. Acknowledgements

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The Legatum Institute wishes to thank the following individuals who assisted in the production of the 2008 Prosperity Index.

Janika Albers

Jo Alexander

Rhiannon Alexander

Giles Alston

Nicole Anwer

Oliver Balch

Cris Ballinas

Hamish Banks

Zsofia Barta

Samuel Bazzi

Ame Berges

Alexander Bristow

James Drinkwater

Maurice Fakoury

Jean Geran

Lucy Greig

Glenn Goldsmith

Anthony Harris

Luke Haywood

Mo Henderson

Gergely Hudecz

Erik Jackson

Nick Jones

Oswaldo Molina

Sarah Naimark

Chris Noon

Dan Severson

Ryan Streeter

Colin Webb

Toni Weis

Laurence Williams

Sam Wilkin