Executive Summary

1. All discussions about the desirability of policy reforms rest on judgements about their effects of individuals and societal well–being. Yet, suitable measures for assessing how well–being is changing over time or compares across countries are lacking. This problem is, of course, not new and standard economic theory has provided, over the years, a range of insights about the criteria and domains that are most critical for the measurement of well–being, and on the relation between well–being and measures of economic resources. This paper does not revisit this theoretical discussion, nor does it provide a comprehensive review of different approaches to the measurement of well–being. It rather assesses whether GDP per capita is an adequate proxy as a measure of well–being or whether other indicators – used either as substitutes or as complements to GDP per capita – are more suitable for that purpose. Attention is limited to only some of the factors that influence well–being, and excludes some critical elements such as the environment, home production and other non–market factors.

2. The main findings of the paper are the following:

- Within the national accounts framework, other – and possibly better – measures of economic resources than GDP per capita exist (e.g. net national product, net income) but data availability and reliability restrict the scope for cross–country and inter–temporal comparisons. The different economy–wide measures that are available are closely correlated with each other, and paint a similar picture of the ranking of countries and developments over time, while there are larger differences when comparing income measures for the economy as a whole and for households.

- Illustrative calculations to “extend” measures of economic resources to include leisure time, the sharing of income within households and distributional concerns suggest that
cross-country ranking based on the augmented indicators and on GDP per capita are generally similar, although they have evolved differently over time.

- Several indicators exist to measure specific social conditions that are related to well-being. Across OECD countries, levels of most of these social indicators are significantly correlated to GDP per capita while changes over time are not. A composite index based on these indicators points to significant difference in performance relative to GDP per capita in around half of countries, whatever the weights used.

- Survey-based data on happiness and life-satisfaction across OECD countries are only weakly related to levels of GDP per capita. Research on these subjective measures suggests that there are several distinct domains – such as joblessness, family and community ties – that contribute to overall life-satisfaction and that their influence cannot be reduced to a single dimension of economic resources.

3. In summary, measures of economic growth remain critical for any assessment of well-being but they need to be complemented with measures of other dimensions of well-being. How best to integrate these different measures is an open question. One approach is to take measures of economic resources as a starting point and then introduce a series of corrections to incorporate other arguments, but internationally-agreed standards on how to value these various non-market factors have yet to be developed. A different approach is to use various non-monetary indicators alongside conventional measures of economic resources: while still lacking a coherent conceptual and statistical framework, these indicators provide information that is relevant for the assessment of well-being.
PART I

Chapter 2

Measuring Well-being: What Role for Social Indicators?
1. Introduction

Social indicators aim to provide information on well-being beyond that conveyed by conventional economic measures.\(^1\) While the level and change in gross domestic product (GDP) per capita have long been used as the main yardstick for measuring and comparing living standards across countries, policy makers and citizens are concerned with much more than just GDP per capita. In particular, they seek to ensure the overall well-being of society, both today and in the future.

But what precisely is “well-being”? Answers differ. Social indicators focus on observable outcomes in a variety of fields (health, literacy, poverty) based on the premise that most people would agree about the value of what is being described and that these social characteristics can be measured reliably and independently of people’s subjective perceptions. On the other hand, the economic literature assumes that individuals derive well-being from the satisfaction of their wants according to their preferences, chiefly as exercised in the marketplace. Satisfaction of wants is a function of what individuals consume, but since their consumption is ultimately determined by their income, this can be used as a proxy for well-being and reliably measured using national accounts income measures.

Up until the recent period, using a monetary measure like GDP per capita as a proxy for the population’s well-being made much sense. GDP per capita provides an accurate measure of a country’s capacity to deal with the material needs of its residents. And so long as the basic necessities of life remain scarce, additions to GDP per capita can be expected to equate closely with improvements in meeting the population’s basic needs, and hence in greater well-being. The consensus on the use of GDP per capita as a good proxy measure of well-being is, however, becoming less obvious as the more developed societies move from a situation of scarcity to a situation of plenty. The intuitive notion that, once a certain level of material needs has been met, further increments in economic growth will not necessarily yield the same improvements in the well-being of the citizens is backed up by numerous studies that indicate that this divergence between added income and added well-being holds true both within and across societies.

So there is a need for indicators that better reflect non-monetary factors – but is there a single indicator that can be measured reliably across countries and used as yardstick for well-being? Unfortunately, the answer is No. This may be seen as providing one argument for sticking with GDP per capita: after all, it can be calculated with a certain degree of reliability to yield a figure that can be readily compared across countries. This should not be viewed historically, however: the current development of comparable economic measures represents a relatively recent achievement. In the post-World War II era great efforts have been made to develop harmonized tools to measure economic growth. These tools have become increasingly sophisticated as economies have shifted from the production of goods like wheat and steel, which are more easily quantified, into the production of services, for which measurement is more elusive. But considerable progress has also been made in developing a comparable set of social indicators, particularly since
the 1980s, when the OECD first presented its social indicators (OECD, 1986). This progress needs to be sustained, *inter alia* through greater co-operation between the statistical offices of member countries and international organisations such as the OECD – whose role in this field can be similar to what it has achieved in respect to conventional economic statistics.

This chapter considers four approaches to measuring well-being. First, it presents evidence on the importance for well-being of the social indicators presented in different issues of *Society at a Glance* and on the extent to which they are correlated with GDP per capita. Second, it reviews monetary measures of economic resources derived from national accounts. Third, it looks at ways in which these monetary measures can be adjusted to take into account other factors that influence well-being, in particular leisure time, household size and aversion to inequality. Finally, it considers subjective measures of happiness and life satisfaction, before concluding.

### 2. Social indicators

Social indicators provide a complementary approach to GDP-derived proxies for well-being. In this chapter, four indicators have been chosen for each of the four domains (self-sufficiency, equity, health status and social cohesion) described in Chapter 1. The selection of these indicators, while subjective, is based on both their importance to social well-being and their availability, so as to allow meaningful cross-country comparisons.

Do these indicators provide additional information relative to that conveyed by GDP per capita? To answer this question, the top panel of Figure 2.1 presents the simple correlation between the levels of these 16 social indicators and GDP per capita. The bottom panel of the figure presents the correlation between average annual changes in the two sets of variables. The panel shows varying degrees of correlation between the 16 social indicators and GDP per capita, with the highest degrees of correlation with health indicators and the lowest with social cohesion indicators.

- **Self-sufficiency** reflects the extent of participation in the economy and society and how well individuals are able to get through daily life on their own. It is measured in terms of the overall employment rate, the proportion of the population in households where nobody has a job, the average number of years of schooling, and the average school performance of children at age 15. All these factors affect or will affect the ability of individuals to earn a decent living. GDP per capita correlates significantly with employment rates but not with measures of how employment opportunities (and thus joblessness) are shared within the population. Likewise, in richer countries the average adult has completed more years of education, but the average 15-year-old student does not necessarily perform better. There is only a weak correlation between changes in these self-sufficiency measures and GDP per capita.

- **Equity** reflects the distribution of household incomes and the extent of equality of opportunity and autonomy of individuals. It may be measured in terms of income inequality, relative poverty rates, child poverty and the gender wage gap. Higher levels of GDP per capita correlate to some extent with lower inequity in income distribution. OECD countries with lower GDP per capita also tend to record higher relative poverty and poverty among children, but not necessarily lower earnings inequalities by gender. Increases in GDP per capita go hand-in-hand with reductions in income inequality and gender wage gaps, but this is only very weakly, if at all, related to changes in child poverty and relative poverty.
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Health status reflects not only disease and its cure, but other social factors that can affect mortality and morbidity. The four key indicators of health status used here are life expectancy at birth, “healthy” life expectancy at birth (i.e. lifespan free of disabling medical problems), infant mortality rates and the potential years of life lost as a result of accidents or preventable disease. These indicators are strongly correlated with GDP per capita.
capita, meaning that on average OECD countries with higher incomes enjoy better health. Nevertheless, differences in country performance can still be significant – for example, infant mortality rates differ by a factor of around two between countries with similar GDP per capita. While changes in GDP per capita are positively related to changes in health status, the correlations are weak and not statistically significant.

- A feeling of belonging to a wider community and the satisfaction that derives from participation in the broader society are important to well-being. But social cohesion is measured not only through positive indicators, like the share of people who volunteer in community groups, but also through negative manifestations, such as levels of crime, victimisation and suicide. While people do more volunteering in countries with higher GDP per capita, there is no significant correlation with the negative indicators, although an increase in GDP per capita does seem to go hand-in-hand with a decline in the number of people who have been victims of crime.

Overall, social indicators provide information about a number of dimensions of well-being that seem to go beyond what is conveyed by GDP. The main weakness of social indicators is, however, that they do not allow a parsimonious representation of well-being, because of the lack of agreement on how to aggregate these indicators. A simple synthetic measure can be constructed by normalizing and then aggregating the 16 indicators described above into a composite index that can be compared across countries. This index then needs to be tested to see how robust it is when different weights are used to aggregate the various elementary indicators. The techniques used to perform this operation are described in Boarini et al. (2006).

Figure 2.2 shows the median value and confidence interval for a composite index constructed using the 16 social indicators weighted in a number of ways. The composite
The index of the social indicators yielded by this operation differs significantly from the relative performance indicated by GDP per capita in slightly more than half the countries. Using different methodologies to construct the composite indices yields similar results. In general, several composite indices developed in individual OECD countries highlight a common pattern of much smaller increases in well-being than in GDP per capita since the early 1970s, and in recent years they even indicate declines (Sharpe, 1999).

3. Monetary measures of economic resources

The second approach to the measurement of well-being is to use one or another way of calculating real income from the System of National Accounts. While more established, problems remain in ensuring cross-country comparability. Furthermore, the impact of non-monetary factors on well-being is excluded.

As mentioned above, the monetary measure most commonly used to assess the total value of the economic resources that affect well-being is GDP per capita. GDP measures the value of the goods and services produced within a country during a given period of time. In practice, this means the production of those activities that fall within the boundary of the System of National Accounts. The production of these goods and services is generally valued at market prices, based on the assumption that these prices accurately reflect the value (to individuals and society) of the resources used for their production, since they have alternative uses. Some activities that are included in GDP are, however, particularly difficult to measure. Government services, for example, are often provided free or at a subsidised price to direct users, and their output cannot be valued in terms of market prices. In the past the value of inputs has been used to make estimates, which amounts to equating government output to the cost of its production. Recently some OECD countries, such as the United Kingdom, have modified their approach and begun to measure changes in government production based on direct measures of output. While these adjustments remain controversial, their implications are significant: Atkinson (2005) reckons that methodological differences in accounting for government output explain nearly half of the difference between the GDP growth rates for the United Kingdom and the United States between 1995 and 2003.

Valuing quantities through market prices assumes that the prices are representative of the marginal contributions of the different goods consumed to the utility of individuals. In this approach, however, GDP per capita is only a proxy of well-being, meaning that there are several areas in which it fails to take into account factors that are of importance as well:

- GDP excludes a range of non-market activities that influence well-being, due frequently to practical concerns with measuring them, because their value is not easily defined in market terms. These include not only illegal activities and home activities like housework and do-it-yourself work, but also leisure, which is clearly of value to society and important to well-being.

- Conventional measurements of GDP exclude changes in asset values, although these clearly influence what an individual can consume in the current period without becoming worse off. Therefore, GDP more accurately reflects what a society produces than what it can consume.

- GDP does not take account of externalities, such as pollution or environmental deterioration, nor of depletion of non-renewable resources. This distorts how much market prices actually reflect the marginal contribution of certain items to well-being, including those of future generations.
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GDP does not distinguish inter-country differences in the distribution of income. To most people, a huge increase in national income that goes exclusively to a tiny handful of very wealthy families will not increase general well-being as much as if it were more equitably distributed.

For these and other reasons, various adjustments have been made to SNA-based measures to develop alternative monetary measures of well-being.

3.1. Gross national income: adjusting for net transfers from abroad

GDP takes into account only the production process that occurs within the borders of a country, and ignores that some of the income generated by these activities is paid to non-residents, while residents receive income from production in other countries. The purchasing power of residents may also increase or decrease with respect to foreign goods due to changes in the terms of trade, that is, the price of imported relative to exported goods. Factoring in the “net income from abroad” gives a figure for gross national income (GNI) that is more relevant to the well-being of the country’s residents.

To compare these figures between countries, the production data, which are collected in the local currency, need to be converted to a common currency, using purchasing-power-parity exchange rates (PPPs). In most OECD countries, the difference between GDP and GNI per capita is small, since gross income inflows from abroad tend to be offset by gross outflows, although there are some notable exceptions (e.g. Ireland and Switzerland, Figure 2.3). Changes in GDP and GDI per capita over the past decade are broadly similar, with the exceptions of Ireland and South Korea, countries that are large producers of ICT products and suffered, as a result, relatively large declines in their terms of trade.

3.2. Net national income: adjusting for capital consumption

GDP does not reflect the consumption of capital during the production process, and thus overestimates the value of output that actually contributes to well-being without lowering future production. To correct for this, consumption of capital is estimated and then subtracted from GDP to yield the net domestic product (NDP). This is the maximum amount of output that can be spent on consumption while maintaining a country’s productive capacity unchanged. While all countries provide estimates of capital consumption, these are not calculated in the same way, which reduces the international comparability of NDP measures.

Nevertheless, the difference between GDP and NDP per capita does not vary much from one year to another, and neither do country rankings based on the two criteria. NDP per capita in OECD countries is on average 85% of the level of GDP per capita. NDP per capita has, however, grown slightly more slowly than GDP per capita over the past decade, which reflects that capital consumption has grown faster than GDP due to the growing investment in new technologies with a shorter service life.

As with GDP, it is possible to adjust NDP to take into account the affect of “net income from abroad” to obtain net national income (NNI). Keeping in mind the problem with calculating capital consumption, this figure gives, in principle, a more accurate picture of the actual economic resources available to the country as a whole to secure well-being, and shows that GDP per capita does tend to overstate them. Nevertheless, the ranking of countries based on NNI per capita is generally similar to that based on GDP per capita, although the difference is significant for a few countries (Figure 2.3). The growth rates are also broadly similar for the two measures.
Figure 2.3. **Gross domestic product, gross and net national income per capita in OECD countries**

At current prices and current PPPs in USD

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Note: Countries are ranked, from top to bottom, in decreasing order of GDP per capita.
Source: OECD annual national accounts.

StatLink: [http://dx.doi.org/10.1787/025143474403](http://dx.doi.org/10.1787/025143474403)

### 3.3. Measures of the economic resources of households

The aggregates described so far provide only an economy-wide measure of production or income. The notion of well-being, however, mainly refers to the situations of individuals and households. Looking at the economic resources of individuals and households, and taking into account the goods and services that people receive free of charge from the government and from non-profit institutions (NPIs), gives a more accurate picture of their
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There are three ways to use the national accounts to calculate this: household disposable income per capita; household final consumption per capita; and “actual” household consumption per capita, which includes an estimate of the services provided by government and NPIs.7

Not surprisingly, all three of these measures are significantly lower than GDP per capita, especially for final consumption. Nevertheless, all the measures correlate strongly with GDP per capita, even though the gap between disposable income and GDP per capita ranges from 20% in Turkey to 57% in Denmark. Household income and actual consumption have, however, risen less rapidly than GDP per capita in most countries over the past decade (Figure 2.4) – with a gap of as much as one percentage point for a number of countries – reflecting shifts in the allocation of income between households, firms and the public sector.

Figure 2.4. Real household disposable income, real final consumption expenditure and real GDP per capita, average annual growth rate, 1994-2003

Source: OECD annual national accounts and OECD (2005), OECD Economic Outlook, No. 76, Paris.
StatLink: http://dx.doi.org/10.1787/602121645683

3.4. Summing-up on monetary indicators

Overall, when we remain confined within the borders of the System of National Accounts, there is a fair degree of convergence in the levels and, to a lower extent, the growth rates of the different measures of country-wide economic resources, whatever the different adjustments made. But the more realistic the picture of the economic resources that households actually have at their disposal to secure their well-being, the less convergence there is with economy-wide measures of resources.

The indicators of economic resources discussed above measure a key factor for securing the well-being of individuals and society. But however important economic resources are, they don’t tell the whole story - as the old adage tells us, “money doesn’t buy happiness”. This would seem to be particularly true as societies move beyond the point where they are capable of meeting the basic needs of the population for food, shelter and...
clothing. Economists have recognised this limit themselves and have endeavoured to develop various other mechanisms for taking into account non-market factors.

4. Additional adjustments to national accounts measures

The measures of the economic resources that are derived from the national accounts can be adjusted by attaching a monetary value to various non-monetary factors in order to obtain a better proxy of the well-being of individuals and societies. The main difficulty is how to price different non-market activities, such as leisure, and unrecorded economic activities, such as work in the home. Different estimates generally value the inputs into these activities based on either replacement costs or opportunity costs. Some results suggestive of the impact of some of these non-market factors are presented below.

4.1. Well-being and leisure

Using GDP-derived measures as proxies for well-being takes no account of leisure time. Yet leisure time is obviously of great importance to almost everyone’s well-being. In this sense, it is a “good” that has a certain marginal utility. But how can we measure its quantity? And how should it be valued? We are certainly far from having satisfactory responses to these questions. Still, the large cross-country differences in the annual amount of paid work performed by workers suggest that there are big differences in the amount of leisure time that they enjoy in different countries. Part of the gap in GDP per capita between the United States and most other OECD countries reflects the greater number of hours American workers work each year. How much is this due to differences in culture and/or preferences, and how much to the impact of policies and institutions? While it is impossible to answer these questions precisely, any realistic evaluation of well-being needs to ascribe some monetary value to the leisure time of workers.

This valuation is performed here by adding to GDP per capita an estimate of the quantity of leisure time annually enjoyed by each worker valued in three different ways: at GDP per hour worked, at the hourly compensation of each worker and at half of hourly compensation (to allow for the possibility that lower working hours in some countries reflect the impact of taxes and other policies). Plotting the gaps relative to the United States in “leisure-adjusted” GDP per capita using these three approaches shows that any positive valuation to leisure narrows the gaps relative to those based on GDP per capita (the higher the valuation placed on leisure, the narrower the gap). The average annual growth in “leisure-adjusted” GDP per capita tends to exceed that of GDP, with the difference being especially large in some European countries (Figure 2.5).

4.2. Well-being and household size

Estimates of per capita household income in the national accounts are obtained by summing up income across all households and dividing the total among the resident population. This approach does not take into account any variation in household size. In fact, households of different sizes have different abilities to pool resources and do not need the same income to assure the same level of well-being for their members. For instance, a household consisting of a couple with two children does not necessarily need twice the income of a childless couple to achieve the same level of well-being. One way this factor can be taken into account is by applying a common “equivalence scale” to survey data on household income to calculate what is called the “equivalised household disposable income” of each person.
Figure 2.5. **Average annual growth rate of GDP adjusted for leisure time of workers, 1970-2003**

Note: The quantity of leisure time of workers is estimated by deducting from the time-endowment of each worker a (common) estimate of the time devoted to personal care and unpaid activities and (country-specific) estimates of annual working hours per worker. Leisure time is valued using three different prices: hourly compensation of employees; half of hourly compensation; and GDP per hour worked. While the time period considered extends from 1970 to 2003 for most countries, it is shorter for some (Austria, the Czech Republic, Germany, Greece, Hungary, Korea, Luxembourg, Mexico, New Zealand, Portugal and the Slovak Republic). For further details, see Boarini et al. (2006).

Source: OECD Productivity database and annual national accounts.

StatLink: [http://dx.doi.org/10.1787/568566035223](http://dx.doi.org/10.1787/568566035223)
Equivalence scales are computation devices, and there is little empirical consensus on their “true” value; they may also vary from country to country as well as over time. While the levels of equivalised disposable income are therefore not especially informative – estimates show that, as might be expected, equivalised household disposable income exceeds the non-equivalised measure, which assumes that everyone lives alone, and that the difference is greater in countries where the average household size is larger – changes in equivalised disposable income over time show that the general trend towards smaller family sizes has reduced economies of scale and well-being in all countries, sometimes by a considerable margin (e.g. Italy and Mexico, Figure 2.6).

Figure 2.6. Real annual change of per capita household disposable income and adjustments for changes in household size, 1995 to early 2000s

Note: Survey data on household disposable income refer to discrete years (in the mid-1980s, mid-1990s and early 2000s) that may differ across countries. To allow comparisons between the years shown, these data have been interpolated between available observations and (when necessary) extrapolated to 2002. Data on the average size of private households (as available through these surveys) have been applied to the national accounts “aggregate” measure of household disposable income (to avoid the comparability problem of differences in survey- and national account-based measures of household disposable income).

Source: Calculation based on OECD national accounts and OECD questionnaire on income distribution and poverty.
StatLink: http://dx.doi.org/10.1787/534122818370
4.3. Inequality in the distribution of economic resources

Income is not distributed equally in any OECD country, and OECD-wide trends since the mid-1980s indicate that the degree of inequality has increased, particularly in a few countries (Förster and Mira d’Ercole, 2005). Conventional measures of GDP per capita attach the same weight to each unit of income, regardless of how equally it is distributed. Yet many theories of social justice would argue for giving an added weight to income that goes to the poorest strata, especially in more unequal societies. For example, in a situation where the income of the richest decile of a population rises by amounts equal to the declines in income of the poorest decile, per capita income remains constant, whereas most observers would agree that the general well-being of the society has declined.

To take the issue of unequal distribution into account, it is possible to adjust GDP and household income by weighting the average income of each decile of the distribution by a coefficient that represents the degree of social aversion to inequality (Kolm, 1969). Figure 2.7 shows the results of calculations performed using three different weightings to adjust household disposable income to reflect the society’s aversion to inequality. A higher value for this coefficient implies a higher degree of aversion to inequality, and therefore that less weight is given to higher incomes. So in countries where income growth has been skewed towards the better-off, applying the higher value of the coefficient will reduce the annual change in household income (the United Kingdom, the Czech Republic, the United States) while in those where the poorer deciles have benefited more it will tend to increase the annual change (Mexico, Spain, Norway). While a low or even intermediate degree of aversion to inequality does not change the country rankings much, a higher degree of aversion to inequality leads to significant changes. Using a coefficient to reflect the highest degree of aversion also lowers the adjusted growth rate for disposable income for the period 1985-2002 to 0.6%, as compared with 1.4% for conventional income, with greater declines in some countries (Figure 2.7). In conclusion, while the degree of inequality in income distribution can have a significant impact on the assessment of well-being, as compared with measures using conventional income, the extent of the impact depends crucially on the assumption of the degree of aversion to inequality in the given society.

4.4. Well-being and the environment

Well-being does not depend only on social and economic factors but also on environmental ones. Indeed, historically, much of the research on expanded measures of well-being has been driven by concerns about environmental degradation. Concern about sustainable development emphasises the need to take into account resources and capital stocks that are not included in the production boundary of conventional economic accounts. Although a sustainable development approach has direct implications for the measurement of income – in particular in terms of resources and environmental values that are affected by production but not calculated in market exchanges – there are not yet established mechanisms for integrating these concerns into measurements of economic resources. Further, as in the social area, the relation between environmental quality and economic development is complex. Higher GDP levels generally tend to stress the environment more, but also increase the capacities and resources for dealing with environmental problems.
4.5. Summing up on adjustments to monetary measures

The various approaches described in the above section to take into account some of the factors that affect well-being but are omitted in conventional accounts are rooted in economic theory. But the different methods for valuing these factors inevitably lead to different conclusions. In addition, other factors that are of importance are still ignored, such as production in the home, defensive expenditure (i.e. spending undertaken to remedy some of the damage associated with economic growth) and environmental factors.
While these are difficult to measure, ignoring them may lead to misleading conclusions in so far as they vary over time and between countries. This is particularly the case when these factors are directly affected by economic activities.

5. Well-being and happiness

Instead of using objective measures as proxies for well-being, a third approach is simply to ask the individuals themselves how satisfied they are with their lives. Subjective measures of well-being are of course fraught with methodological difficulties. They could reflect different underlying concepts, be influenced by transient factors, or be affected by linguistic or cultural differences. Nevertheless, studies have shown that individuals who report higher levels of satisfaction with their lives are also rated as happier by their relatives and friends, tend to smile more during social interactions, have higher pre-frontal brain activity (the part of the brain associated with positive states), are more likely to recall positive life events, and have a higher resilience to stress (Layard, 2005). Several global surveys exist, such as the World Values Surveys, that utilise comparable criteria and ask a representative sample of people such questions as how satisfied they are with their lives.

Comparisons of subjective measures of life satisfaction with average income at the national level reveal two findings:

- Across countries, people living in countries with a higher GDP per capita tend to report being happier at a given point in time, but the size of the gain in subjective well-being tends to decline once GDP per capita exceeds USD 10 000 (Frey and Stutzer, 2002). This tapering-off is however less clear when referring only to OECD countries (Figure 2.8, left-hand panel), and varies with the measure of national income used (i.e. GDP or NNI per capita).

- Across time, the coexistence of a rapid rise in GDP per capita with stable levels of subjective well-being has been interpreted as evidence that greater material prosperity does not necessarily make people happier (see the right-hand panel of Figure 2.8 for an illustration based on data for selected OECD countries). The stability of the indicator for subjective well-being may however reflect to some extent that it is measured using a bounded variable (i.e. respondents are asked to rank their life satisfaction on a scale – e.g. by 1 to 10 – that is unchanged over time) whereas income is measured with an unbounded variable (GDP per capita).

While the conclusions concerning the link between income and subjective life satisfaction based on aggregate cross-country data remain controversial, there is firmer evidence about the determinants of happiness and life satisfaction at the level of individuals.

- First, while individual data do highlight a relation between income and well-being, they also show that the differences in reported well-being between individuals are not proportional to the differences in their income. Furthermore, changes in individual income do not bring comparable changes in subjective well-being, and depend strongly on the direction of changes in income – a loss has a much bigger effect than a comparable gain. This probably arises because individuals adapt to a certain level of income (“satisfaction treadmill”), and higher income levels lead to expectations that are more difficult to fulfill. Another factor at work here is the desire to “keep up with the Joneses”, although social comparison may sometimes work to increase subjective well-being too.
Second, differences in the personal income of individuals explain less of the difference in reported well-being than a range of other factors, such as employment, family relationships, health and education, and income inequality (Di Tella and MacCulloch, 2005). However, some of these factors are themselves correlated with differences in GDP per capita levels.

6. Conclusions
Overall, there is some consistency between the four approaches to measuring well-being (social indicators, money income, money income adjusted for different non-market factors and subjective measures) but also some important differences. While research based on social and subjective measures in particular is still in its infancy, the consideration of non-material factors strongly suggests that money income is not the only relevant factor. Furthermore, they also show that, as the English poet John Donne observed centuries ago, “no man is an island, entire of itself; every man is a piece of the continent”: people’s happiness depends to a large extent on the circumstances of the broader community they are part of and their relationship to it. Because of these reasons, the social indicators presented in this and subsequent editions of Society at a Glance may be expected to play an increasingly important role within any assessment of how individuals and society are faring.
Notes

1. This is, of course, only one of the goals of OECD social indicators. In addition to measuring the “social status” of OECD countries, the two other goals are describe the “social context” and “societal responses” to various problems (see Chapter 1).

2. This chapter draws on analysis provided in Boarini et al. (2006).

3. A full list of indicators published in all issues of Society at a Glance is provided in Table 1.1.

4. This conclusion is further reinforced when the analysis is limited to OECD countries with GDP per capita above a level of USD 25 000; in this case, none of the correlations between levels of social indicators and GDP per capita is statistically significant.

5. Practical guidance on the construction of composite indicators is provided by Hoffman et al. (2005).

6. The correlation coefficient between (normalised) GDP per capita and the median value of the composite index is 0.76.

7. The same adjustment for the services provided by governments and NPIs can also be applied to household disposable income.

8. A comprehensive approach to the construction of non-market accounts in the fields of home production, human capital, the environment, health and education, government and the non-profit sector is described in Abraham and Mackie (2005), which summarises the conclusions of a panel of the National Research Council for the United States.

9. Accounting for the leisure time of non-employed persons would have required controversial assumptions on whether unemployment is voluntary or involuntary, and to distinguish between the home production and the leisure time of housewives. An earlier assessment of the impact of leisure time (and income inequality) on well-being was provided by Beckerman (1978).

10. Practical steps to better integrate physical measures of environmental stress within national accounts are described in the 2003 Handbook of Integrated Environmental and Economic Accounts (a co-publication by United Nations, European Commission, IMF, OECD and the World Bank). However, such satellite accounts are not widely used in OECD countries.

11. Nordhaus and Tobin (1973) in their seminal contribution on measures of economic welfare adjust national accounts aggregates for leisure time, defence and other intermediate expenditures, household production and some of the dysfunctions arising from urbanisation. They conclude that their preferred measure of economic welfare per capita increased in the United States at an annual rate of 1% from 1929 to 1965, as compared with 1.7% in personal consumption per capita and 1.6% in net national product per capita.

References


