Modern Economic Growth and Quality of Life: Cross-Sectional and Time Series Evidence

6

Richard A. Easterlin and Laura Angelescu

Introduction

This chapter provides a selective survey of cross-sectional and time series evidence on the empirical relation between quality of life and modern economic growth. The phenomenon of modern economic growth, so-named by Nobel Laureate Simon Kuznets (1966), marks a new epoch in the economic history of humankind, and first appeared on the world scene in the latter part of the eighteenth century in northwestern Europe. It may be defined as a rapid and sustained rise in real output per head and attendant shifts in production technology, factor input requirements, and the resource allocation of a nation. "Rapid and sustained" is taken here to mean an average growth rate of real GDP per capita that approaches 1.5% per year or more over at least half a century. A rate of 1.5% per year is about the average in the half century before World War I for the group of 15 nations that were the leaders in modern economic growth. It is unprecedented in human history—projecting real per capita output backward from, say 1850, at a 1.5% annual rate would in a matter of a few centuries yield income levels well below the margin for human survival. In the last half of the twentieth century, growth rates in many parts of the developed and developing world have substantially exceeded 1.5% per year.

The basis of modern economic growth is a sweeping change in the technology by which goods are produced (Easterlin 1996). In every country that has developed, essentially the same methods of production have been employed, marked by a dramatic rise in the ratio of physical and human capital to unskilled labor, the use of inanimate energy and mechanization, growth of scale in many industries, and the development of high transportation and communication density. Adoption of this new technology has invariably been accompanied by a shift in the allocation of resources out of agriculture to the industry and service sectors, and a redistribution of labor force to geographic areas favorably situated for the new methods of production.

Quality of life [QoL] embraces the multiple dimensions of human experience that affect well-being. QoL is captured in both objective and subjective indicators. Objective indicators are those external to the individual and encompass measures of material living levels and their components, as well as family life, physical and mental health, work, environment, and so on. The measures relate both to circumstances whose increase raises QoL, such as level of nutrition or life expectancy, and to "bads," such as pollutants and crime, whose increase lowers QoL. Subjective measures are self-reports of personal well-being, as obtained in surveys of happiness, general life satisfaction, prevalence of positive and negative moods, and the like.

Much of the literature relating economic growth to quality of life examines cross-sectional (point-of-time) relationships, usually how countries at different levels of real GDP per capita differ in regard to various QoL indicators, where GDP per capita (or a variant thereof) is taken as a summary index of the level of economic development. Almost always, the data in these studies relate to recent experience—the past few years, the latest decade, or at most the last 40 or 50 years. In these

R.A. Easterlin (✉) • L. Angelescu
University of Southern California, Department of Economics, Los Angeles, CA, USA
e-mail: easterl@usc.edu

K.C. Land et al. (eds.), *Handbook of Social Indicators and Quality of Life Research*,
DOI 10.1007/978-94-007-2421-1_6,

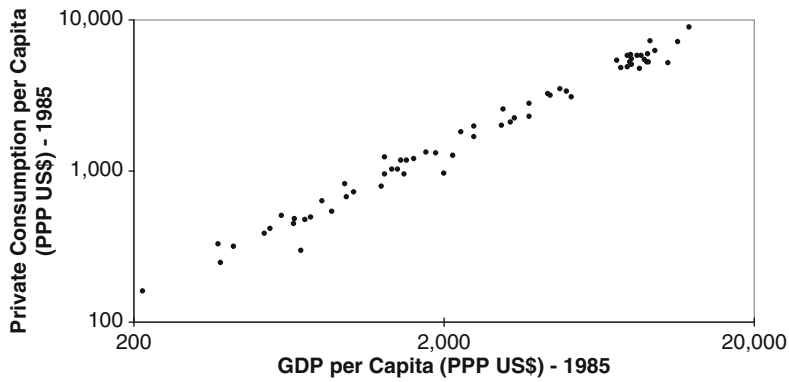


Fig. 6.1 Private consumption per capita and GDP per capita, 64 countries, 1985 (Source: Heston et al. 2002)

cross-sectional studies, positive correlations are often taken as signifying causal relations running from economic growth to QoL. A much more limited set of studies of economic growth and QoL has been based on time series evidence. These studies seek to throw light on the extent to which changes in QoL actually accompany the process of modern economic growth. In what follows, we survey both the cross-sectional and time series evidence, taking up first, objective indicators, and then subjective. We omit indexes that arbitrarily combine indicators from different realms of life such as the Human Development Index (UNDP 2006). Although such measures provide a useful corrective to reliance on a single measure of welfare such as per capita income, the composite indexes suffer from the lack of a theoretical basis for defining the scope and weighting of the indicators included. Even more important, such composite measures, including those combining subjective with objective indicators (Hagerty and Veenhoven 2006) obscure recognition that the components reflect different dimensions of QoL and very likely result from different causal mechanisms.

Objective Indicators

Cross-Sectional Patterns

A wide range of QoL indicators—economic, social, and political—is significantly associated with levels of real GDP per capita in point-of-time comparisons of countries at different levels of economic development. What follows is a small sample of such indicators, chosen partly on the basis of broad societal scope and the availability of observations for a large number of countries, but, more importantly, with a view to ranging across a variety of economic, social, and political conditions.

Consumption Levels

Higher income allows people to satisfy their needs better, and one would expect, therefore, that consumption would be higher in richer countries. This pattern is indeed observed in cross-sectional data (Fig. 6.1). The data for the 64 countries in the figure are the best estimates of quantitative differences in consumption among countries because they are derived using price comparisons for individual goods that cover the entire range of goods included in final consumption expenditure and GDP. According to the estimates, per capita consumption in the five richest countries averages 26 times that of the five poorest. In practical terms, this translates into economic differences in the necessities of life on the order of tenfold for food, 25-fold for clothing, and 73-fold for shelter (Fig. 6.2). Differences in food consumption, in turn, translate into sizeable nutritional differences, as reflected in energy and protein intake, and fruits and vegetables consumption per capita (Fig. 6.3).

The difference between rich and poor is even more pronounced when one goes further up the pyramid of material needs and looks at the consumption of durables. Radios, cars, and television sets are all much more plentiful in higher-income countries (Fig. 6.4). While cars and TV sets are luxuries in most Third World countries, they are part of everyday life in the richer ones, where the question is often not whether a household owns one but rather how many.

One of the main characteristics of modern economic growth is the introduction of new goods. The consumer durables just discussed—cars, radios, and TV sets—were new goods introduced over the course of the first

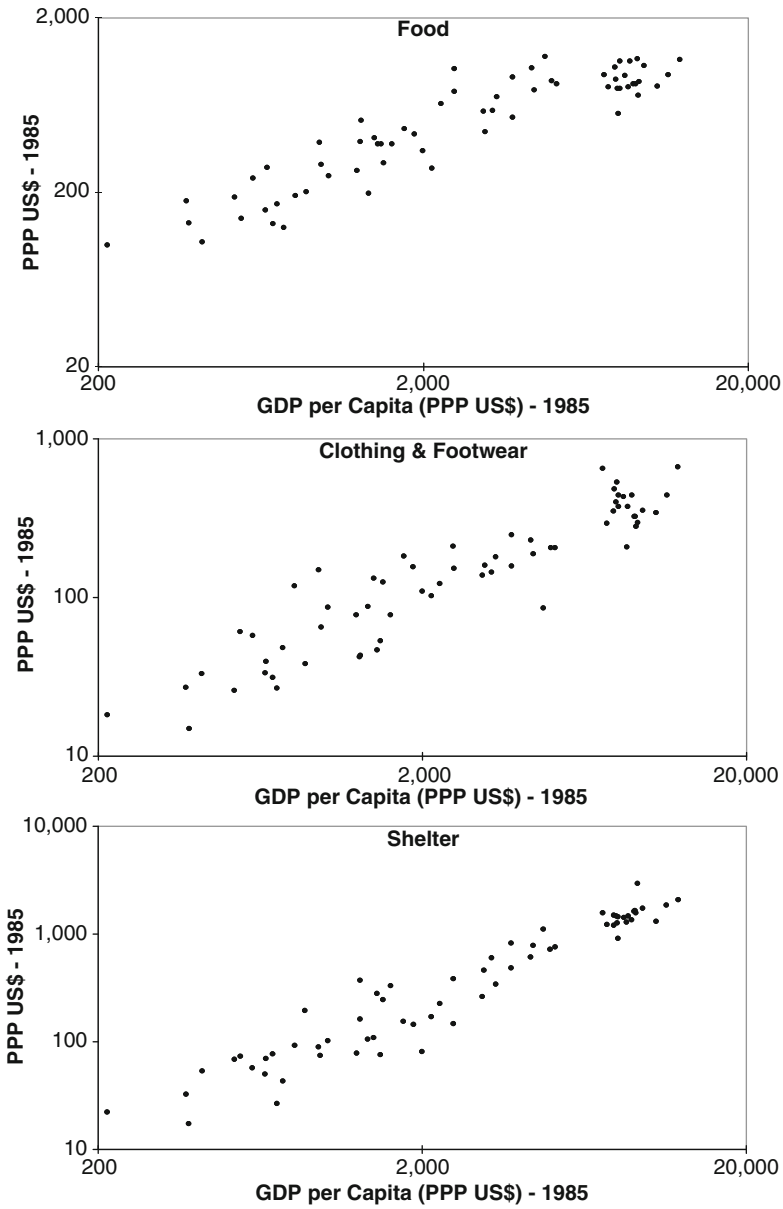


Fig. 6.2 Food, clothing, and shelter consumption per capita and GDP per capita, 64 countries, 1985 (Source: Heston et al. 2002)

half of the twentieth century. Examples of their counterparts at the start of the twenty-first century are cellular phones and the Internet. These even newer goods are already becoming commonplace in developed countries (Fig. 6.5). In poorer areas of the world, however, they are for most persons a thing of the future.

The repeated positive association with higher income observed here for a wide range of consumer goods raises serious doubts about Ronald Inglehart's assertion (1988, p. 1203) that since World War II, a new generation of individuals has emerged in the richer countries characterized by "postmaterialist" values that have, in his words, "tended to neutralize the emphasis on economic accumulation." Neither the data reflecting satisfaction of basic food needs nor those for the consumption of less essential consumer goods and services give any indication of a tapering off of the growth of consumption in richer societies.

Higher income is also sometimes accompanied by an increase in the so-called "bads," showing that economic growth is not costless. Probably the most prominent "bad" is pollution. If we look, for

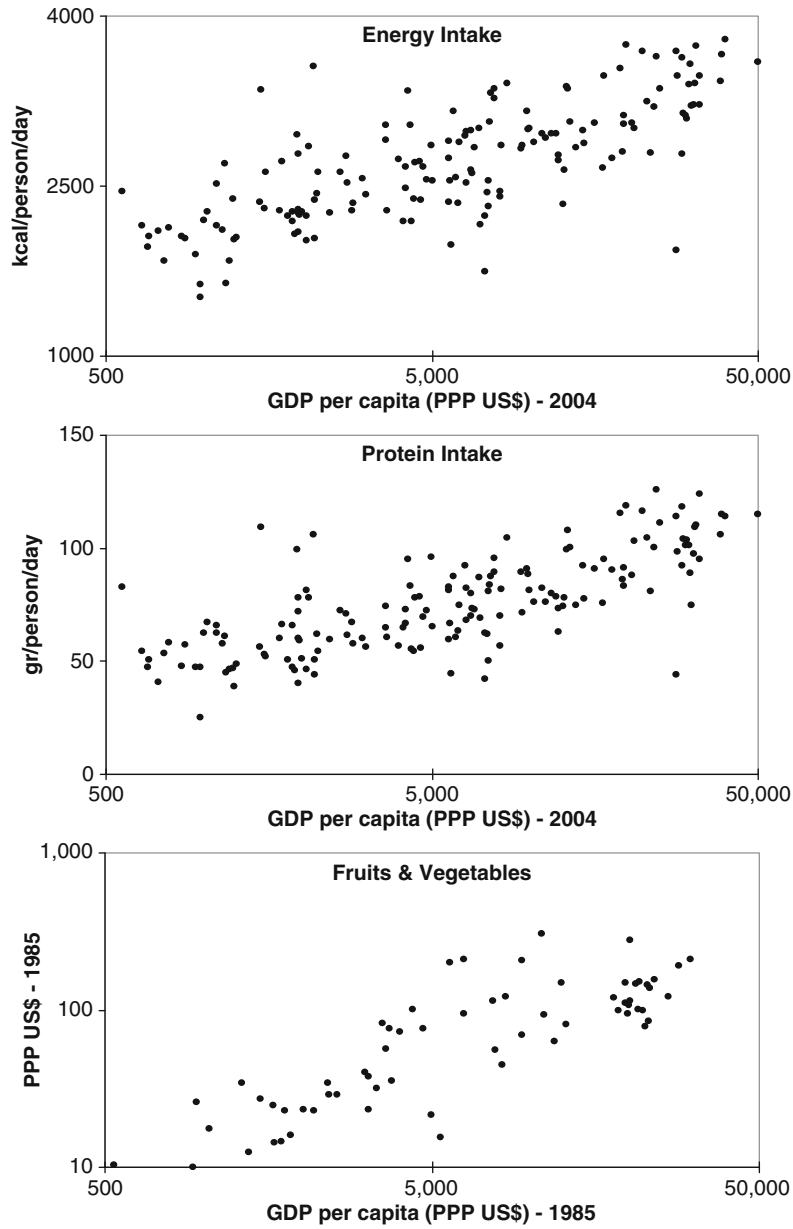


Fig. 6.3 Energy intake and protein intake, 162 countries, 2000–2002, and fruits and vegetables consumption per capita, 64 countries, 1985, and GDP per capita (Source: FAO (2004) for energy intake and protein intake, UNDP (2006) for GDP per capita, and Heston et al. (2002) for fruits and vegetables consumption)

example, at the cross-sectional relationship between GDP per capita and carbon dioxide emissions, we notice a high positive correlation (Fig. 6.6). This strong relationship is hardly surprising given that cars, a salient feature of high-income consumption, are among the main sources of such emissions. Shafik (1994) also reports a very strong positive relationship between income and carbon dioxide emissions. (Holtz-Eakin and Selden's 1995 analysis suggests that there is a diminishing marginal propensity to emit carbon dioxide, but there is little evidence of this in the figure.)

Some argue that, in general, the relation between environmental quality and economic growth is U-shaped, that "environmental quality may deteriorate during a period in which developing countries begin to industrialize, but at some point this deterioration is stopped and reversed as income rises" (Portney 2000).

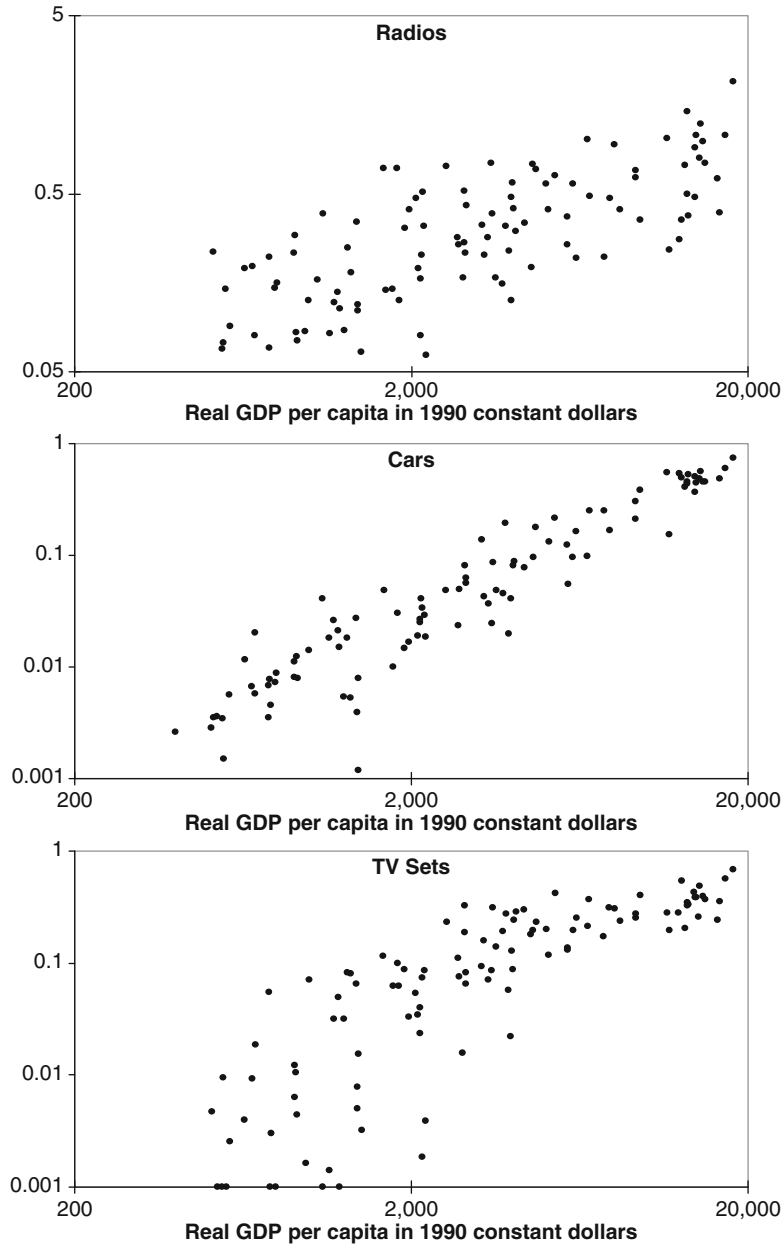
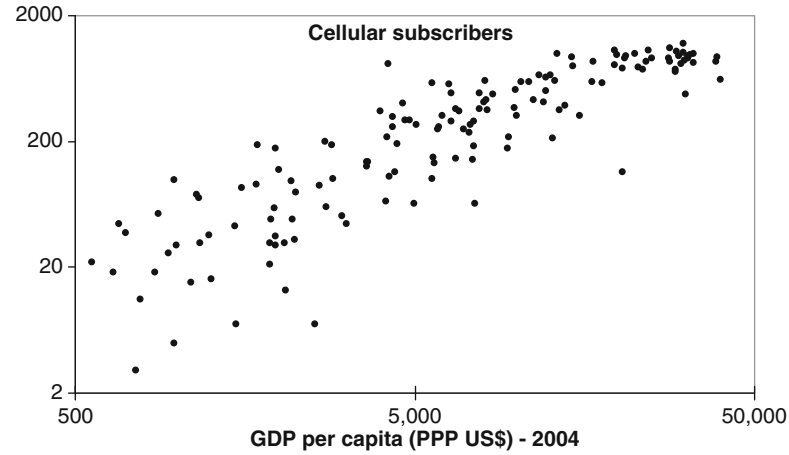


Fig. 6.4 Radios per capita, 113 countries; cars per capita, 98 countries; and TV sets per capita, 107 countries, and GDP per capita, 1990 (Source: Easterly 1999)

Grossman and Kruger (1991) provide some supporting evidence of this U shape in data on air quality in selected cities in developed and developing countries during the period 1977–1988, but a thorough test of the hypothesis remains to be done.

The flip side of higher food consumption reveals another "bad" associated with economic growth—the detrimental diet choices that people in richer countries may make, reflected in their much higher intake of fat (Fig. 6.7). The result is new and growing health problems that these countries are facing, such as obesity and high blood pressure (Offer 2006; Oswald and Powdthavee 2007).

Taken together, these pieces of cross-sectional evidence confirm that richer countries lead the way when it comes to the quantity and quality of consumption. The positive impact of greater consumption on QoL, however, is offset to some extent by negative effects brought about by that consumption, such as new environmental and health problems.



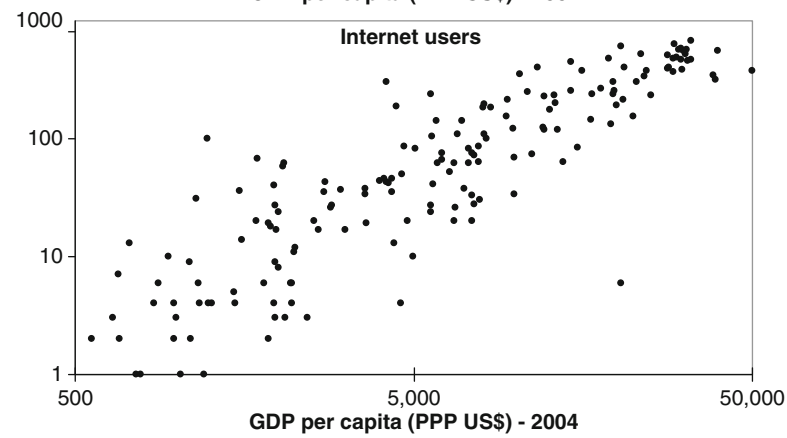


Fig. 6.5 Cellular subscribers per 1,000 people, 146 countries, and Internet users per 1,000 people, 168 countries, and GDP per capita, 2003 (Source: UNDP (2006) for cellular subscribers and GDP per capita and World Bank (2006) for Internet users)

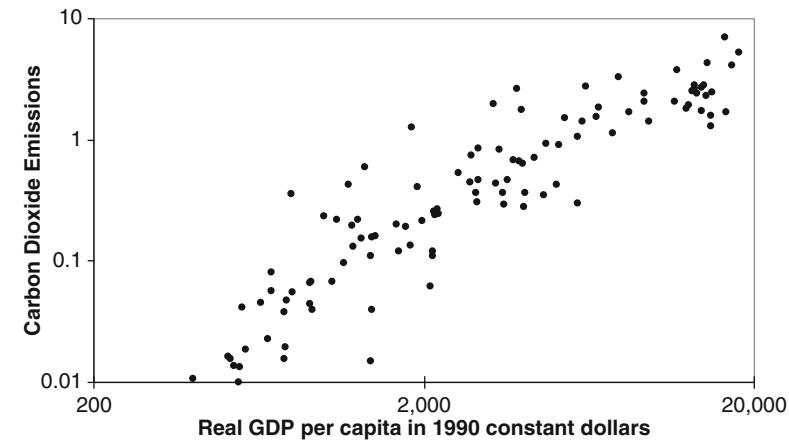


Fig. 6.6 Carbon dioxide emissions and GDP per capita, 109 countries, 1990 (Source: Easterly 1999)

Geographic Distribution

The new technologies underlying modern economic growth dramatically alter the location of economic activity and, in consequence, where people live. Prior to the onset of economic growth, manufacturing is typically carried on with hand tools in shops and homes for limited local markets, and is, in consequence, widely dispersed among towns and villages. With the shift to mechanization and factory production, a strong trend toward geographic centralization of production sets in, with location in cities and towns with good access to transportation increasingly favored (Easterlin 1999).

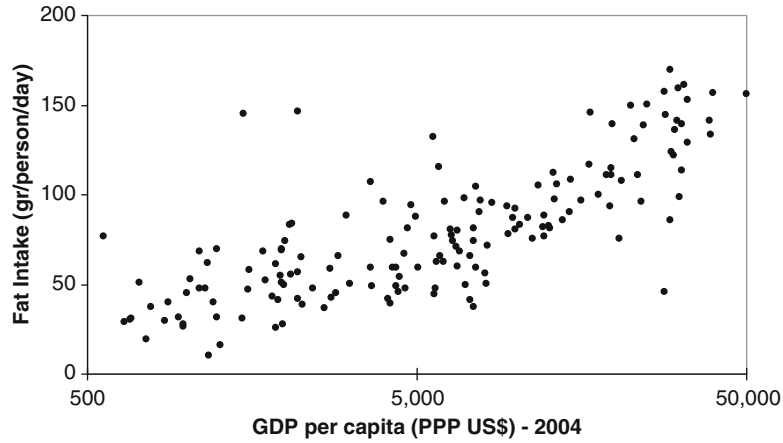


Fig. 6.7 Fat intake (g/person/day) and GDP per capita, 162 countries, 2000–2002 (Source: FAO (2004) for fat intake and UNDP (2006) for 2004 GDP per capita)

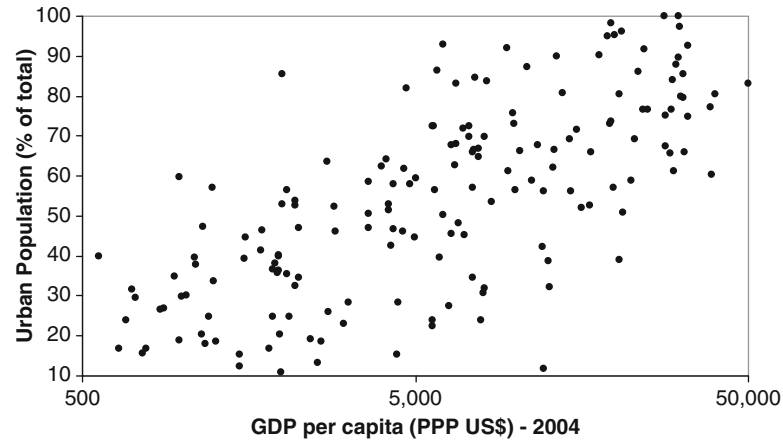


Fig. 6.8 Urban population (% of total) and GDP per capita, 172 countries, 2003 (Source: UNDP 2006)

This shift in the locational distribution of economic opportunity is reflected in the cross-sectional patterns of urbanization (Fig. 6.8).

Whether urbanization of the population is a positive or negative change in QoL is debatable. Although there are analysts who praise the benefits of urban life, such as opera, theater, and spectator sports that require a large population base to sustain them, surveys suggest that a fair proportion of urban dwellers would prefer a rural environment (Fuguitt and Zuiches 1975; Fuguitt and Brown 1990). The suburbanization movement that emerged in the twentieth century with the advent of motor vehicles is arguably a reflection of this preference to live in a more rural-type setting. If this is so, the twenty-first century's emerging Internet technology may lead to a further gradual relaxation of the trend toward population centralization, just as the earlier innovation of motor vehicles promoted suburbanization.

Social Indicators

Representative social indicators of quality of life such as life expectancy and education also exhibit a strong cross-sectional correlation with GDP per capita.

Life expectancy at birth is the average number of years a group of individuals can expect to live. It is determined by considering a fictitious generation that at every age from birth until the age of the maximum life span has a risk of death observed at that age in the year when the indicator is calculated. It is often taken as a proxy, more generally for health. The high positive association of life expectancy with GDP per capita (Fig. 6.9), coupled with higher levels of food, clothing, and housing consumption made possible by higher income, leads naturally to the inference that "Wealthier is Healthier" (Pritchett and Summers 1996). As has been seen, however, increased pollution and adverse dietary changes may also accompany economic growth,

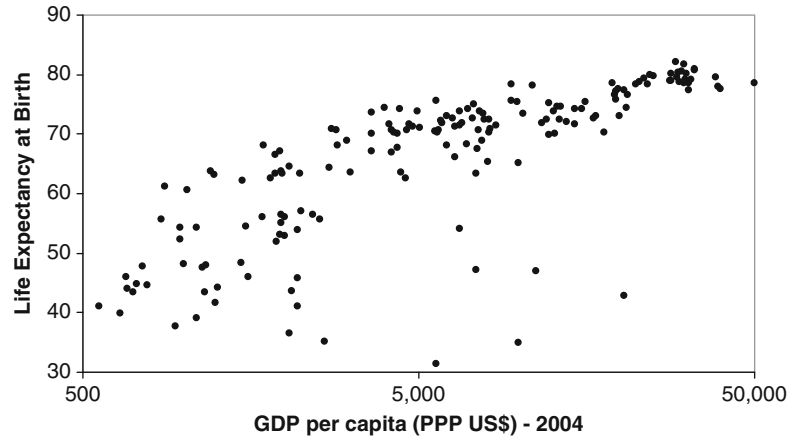


Fig. 6.9 Life expectancy at birth and GDP per capita, 172 countries, 2003 (Source: UNDP 2006)

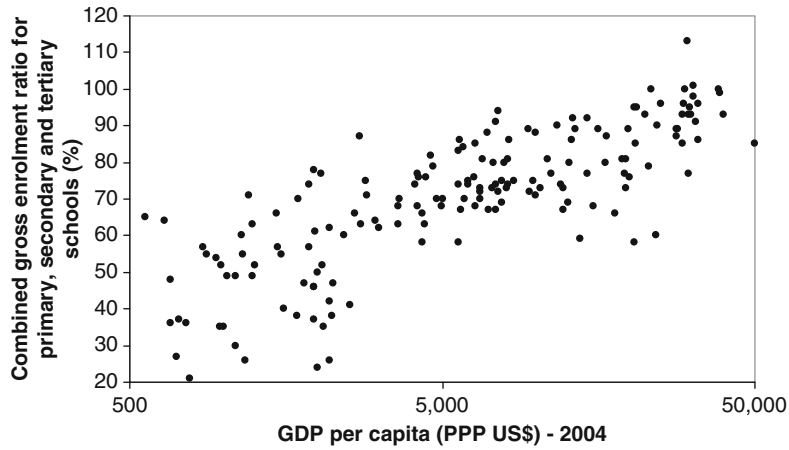


Fig. 6.10 Combined gross enrollment ratio for primary, secondary and tertiary schools (%) and GDP per capita, 169 countries, 2003 (Source: UNDP 2006)

raising some doubts about the simplistic association of greater health with higher income. Indeed, in the nineteenth century, the concentration of population in cities and towns induced by modern economic growth increased exposure to disease (Schofield and Reher 1991). Some experts assert flatly that "low mortality for all will not come as an unplanned spinoff from economic growth" (Caldwell 1986).

A strong positive cross-sectional relationship also exists between GDP per capita and education, as measured by the gross school enrollment ratio (Fig. 6.10). Again, an argument might be made that modern economic growth is the cause of the association because higher per capita income would increase the demand for schooling by individual consumers. But governments too may have an interest in schooling, based on ideological, humanistic, and nationalistic concerns, and act to promote education independently of the level of income. Moreover, some might argue that the empirical association reflects the opposite direction of causality—that education leads to economic growth (Easterlin 1981).

The fertility rate is not often used as a quality of life measure, but it is surely indicative of a major change in women's roles. This point is made vividly by a commentator on the impact of the fertility decline on English working-class women:

> The typical working class mother of the 1890's, married in her teens or early twenties and experiencing ten pregnancies, spent about fifteen years in a state of pregnancy and in nursing a child for the first years of its life. She was tied, for this period of time, to the wheel of childbearing. Today, for the typical mother, the time so spent would be about four years. A reduction of such magnitude in only two generations in the time devoted to childbearing represents nothing less than a revolutionary enlargement of freedom for women. (Titmuss 1966, p. 91)

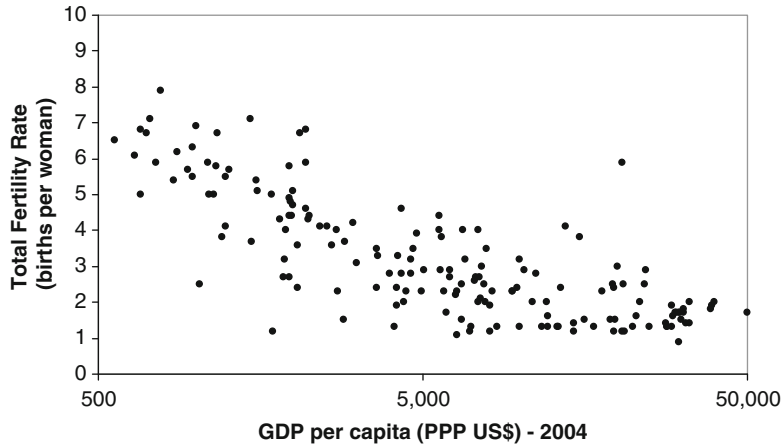


Fig. 6.11 Total fertility rate (Births per woman) and GDP per capita, 167 countries, 2003 (Source: UNDP 2006)

The cross-sectional evidence reveals a very strong negative correlation between GDP per capita and the fertility rate (Fig. 6.11). Just as longer lives and better education are indicators of improved QoL, so too is a lower rate of childbearing, for it means that women are freer to choose what to do with their lives. As in the case of life expectancy and education, however, whether the fertility decline is chiefly caused by economic growth is open to question.

Political Indicators

The relevance of political democracy to quality of life is suggested by Alex Inkeles (1991, p. x) who writes: "[D]emocratic systems give people a greater sense of freedom and, I would argue, more actual freedom, to influence the course of public events, express themselves, and realize their individual human potential." The proposition that economic growth promotes political democracy is often termed the "Lipset hypothesis" (Lipset 1959). It is illustrated here in terms of the "polity composite index." This index is calculated from the Polity IV dataset as the difference between democracy and autocracy measures, both of which range from 0 to 10 (Marshall and Jaggers 2004). The Polity IV democracy index is derived from the coding by knowledgeable scholars of a country's situation with regard to the following: competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. The Polity IV autocracy index is similarly based on scoring countries according to competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. The polity composite index is normalized to lie between 0 and 1, with 1 being the highest rating on political democracy. When 1990s data for this measure are plotted against GDP per capita, there is evidence of a positive relationship (Fig. 6.12).

Human rights and political democracy tend to go together, so one would expect a positive cross-sectional association also to exist between human rights and GDP per capita. This, in fact, turns out to be the case (Fig. 6.13). In the figure, the measure of human rights is based on 40 indicators from the major United Nations human rights treaties—for example, freedom to peacefully associate and assemble, freedom from torture, and the right to peaceful political opposition (Humana 1992). The results are graded into four categories or levels ranging from unqualified respect for a specific right to a constant pattern of violations.

Barro (1997, p. 52), using an index of political rights similar to these two measures and controlling for numerous other factors thought to determine democracy, concludes that "the cross-country evidence examined in this study confirms that the Lipset hypothesis is a strong empirical regularity. In particular, increases in various measures of the standard of living tend to generate a gradual rise in democracy."

Thus, contemporary cross-sectional evidence indicates that a number of important social and political indicators, as well as economic measures, are significantly related statistically to levels of GDP per capita. For the social and political measures, the strength of the relationship, measured, say, by ordinary least squares regressions, is sometimes not as great as for the economic measures, but typically, it is highly significant.

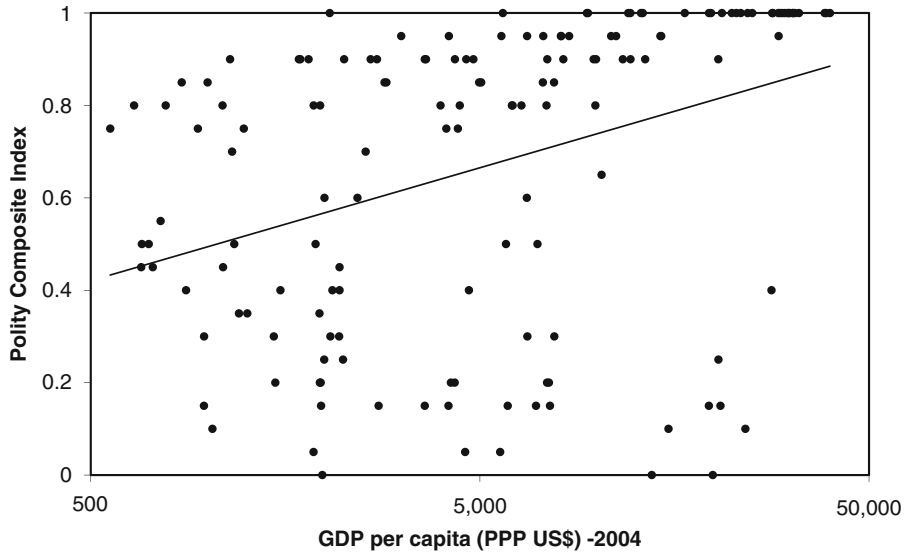
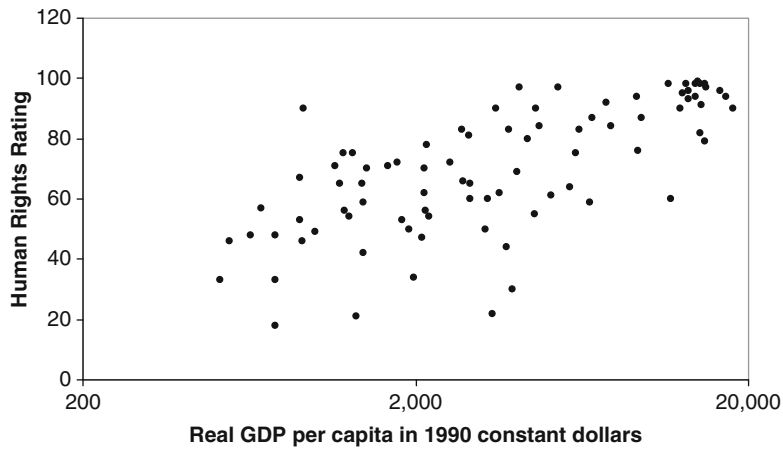


Fig. 6.12 Polity composite index and GDP per capita, 152 countries, 2004 (Source: UNDP (2006) for GDP and Marshall and Jaggers (2004) for the polity composite index)

Fig. 6.13 Human rights rating and GDP per capita, 85 countries, 1992 (Source: Easterly (1999))



Time Series

Cross-sectional comparisons of QoL indicators with GDP per capita, such as those summarized above, give seemingly strong evidence that economic growth has brought about sweeping changes in QoL—most good, but some, bad. Correlation does not mean causation, however, and if economic growth is the moving force behind the observed changes in QoL, then one should find that the cross-sectional associations above are actually replicated in the historical experience of countries undergoing modern economic growth. One would expect, for example, that the takeoff into modern economic growth, which is marked by a noticeable increase in the growth rate of GDP per capita, would be accompanied by similar takeoffs in the various economic, social, and political indicators just surveyed. Is this, in fact, the case? As will be seen, the answer, in general, is yes for measures directly related to economic performance, such as consumption and urbanization, but no for social and political indicators. The implication with regard to causation is that factors other than economic growth play an important part in the advances in indicators of QoL in the social and political realms.

Consumption Levels

Insofar as quality of life embraces material subsistence, there can be little doubt that modern economic growth has brought about a major long-term improvement because the food, clothing, and shelter available to the

Table 6.1 Consumer goods of the 1990s nonexistent or rare two centuries ago[a]

Household furnishings	*Kitchen equipment*	*Personal care, health*
Electric lighting (99)	Electric/gas range (99)	Eyeglasses
Running water (99)	Electric/gas oven (99)	Contact lenses
Indoor flush toilet (99)	Electric/gas refrigerator (99)	Artificial limbs
Electric/gas hot water heater (92)	Coffee maker (99)	Safety razor
Air conditioning (76)	Microwave oven (91)	Vitamins
Ceiling fan (60)	Dishwasher (48)	Painkillers
Floor coverings	Freezer (35)	Antiallergenics
Bedsprings	Outdoor gas grill (28)	Antidepressants
Household cleaning	Toaster	Exercise equipment
Vacuum cleaner (92)	Waffle iron	Quartz, digital watch
Clothes washer (82)	Food processor	*Food, tobacco*
Clothes dryer (74)	Blender	Canned foods
Electric iron	Friction matches	Frozen foods
Cleaning preparations	*Communications*	Prepared cereals and mixes
Transportation	Telephone (95)	Margarine
Automobile (92)	Cordless phone (61)	Chewing gum
Jet airplane flight	Answering machine (58)	Cigarettes
Motorcycle	Personal computer (40)	Pocket lighter
Bicycle	Laser printer (38)	
Recreation	Cellular phone (33)	
Radio (98)	Pages	
Color television (97)	Fax machine (6)	
Video cassette recorder (82)	Photocopier (4)	
Stereo equipment (69)	Mechanical pen/pencil	
Camcorder (26)	*Clothing*	
Movies	Synthetic fibers	
Motorboat	Elastic goods	
Jet ski	Sewing machine	
Camera, roll film		

Source: Easterlin (1996, p. 160), Cox and Alm (1999, p. 26), United States Census Bureau (2005)
[a]Number in parentheses are percent of households with item for goods for which data are available

average household have risen at rates never before known. Since the major part of GDP consists of consumption, time series evidence on aggregate consumption along with GDP would be redundant. But a sense of the enormous transformation in material living levels, qualitative as well as quantitative, can be readily obtained from a simple contrast of living conditions in the late eighteenth century in, even then, relatively rich United States, with the situation today. Everyday life two centuries ago was most akin to what we currently know as "camping out." At that time, among the rural population (95% of the total), housing typically consisted of one-story houses with one or two rooms and an attic under the rafters. Frequently, there was no flooring except the hard earth. A fireplace with a chimney provided heating and cooking. Toilet facilities consisted of outdoor privies. Water and wood had to be fetched. Transportation consisted of a horse and wagon (Brady 1972; cf also Lebergott 1993, 1996).

The qualitative change from that world to the United States' current panoply of consumer goods—cars and planes, electrical appliances and running water, telecommunications and computers, pharmaceuticals and health care, and the phenomenal array of food and clothes—is literally incredible. Writing more than three decades ago about living levels in the United States, economic historian Dorothy S. Brady made this point simply and effectively: "Today, the great majority of American families live on a scale that compares well with the way *wealthy* families lived 200 years ago" (1972, p. 84, emphasis added). Brady's point is readily apparent if we consider the long list of consumer goods that are common today but were either nonexistent or rare two centuries ago (Table 6.1).

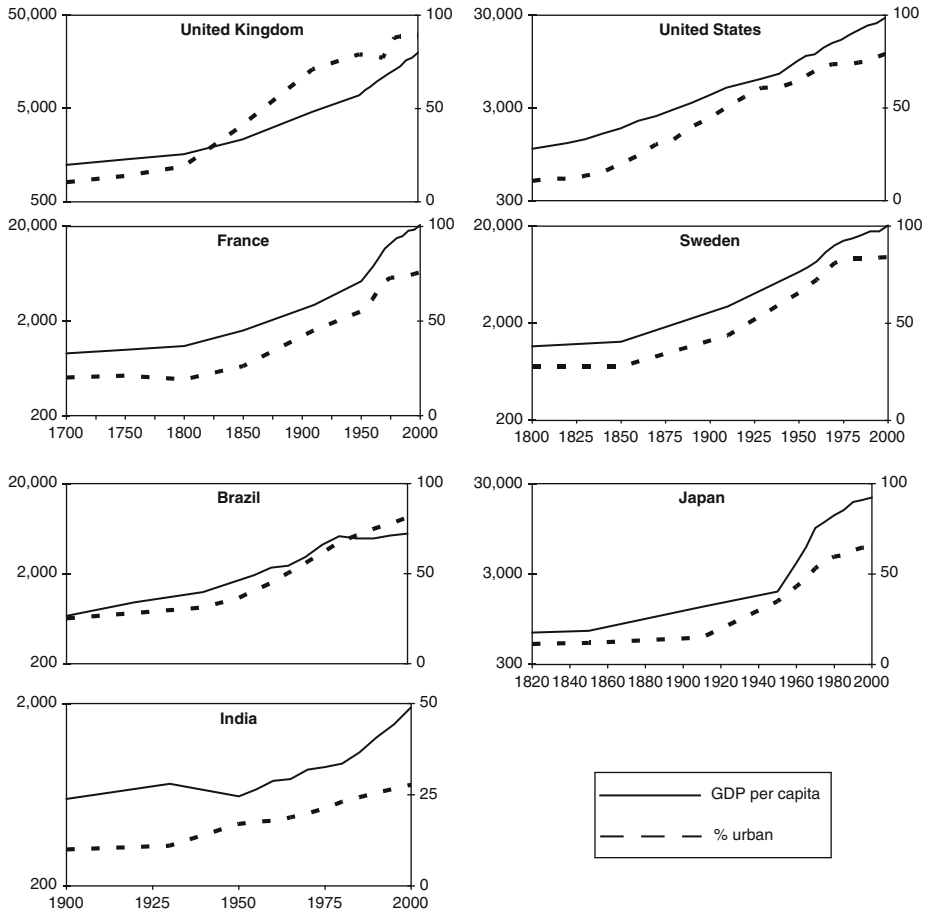


Fig. 6.14 Real GDP per capita and percent of population in urban places in seven countries (GDP in 1990 international Geary–Khamis dollars) (Source: GDP per capita from Maddison (2003). Percent urban from UN (2005) and UN (2004) (http://esa.un.org/unpp) from 1950 to 2000. Previous years for (1) the United Kingdom and France obtained by extrapolation to 1700 based on change in percent urban in Bairoch (1988), 215–221; (2) the United States obtained by extrapolation to 1800 based on change in percent urban in U.S. Census Bureau (1961), 1–4; (3) Sweden and Japan by extrapolation to 1800 based on change in percent urban in Bairoch (1988), 221; (4) Brazil obtained by extrapolation to 1900 based on change in percent urban in Merrick and Graham (1979); (5) India by extrapolation to 1900 based on change in percent urban in Bairoch (1988), 407)

If quality of life is identified with the amount and kinds of goods available to the average consumer, then there can be little question that economic growth has wrought a phenomenal advance.

Geographic Change

The strong centralizing force on the location of economic activity of the new production methods underlying modern economic growth is apparent in the historical experience of a wide range of countries. Figure 6.14 gives time series of the proportion of population in urban areas and GDP per capita for seven countries for which reasonably good and fairly long historical data are available. Although the data are imperfect, the parallel between rapid growth of GDP per capita and urbanization noted in the cross section is apparent in every country (see also Easterlin 1996, Figs. 3.1–3.3). This sharp rise in urbanization with the onset of modern economic growth must be seen against a backdrop of centuries of low levels of urbanization—on the order of 10–15%—with little sizeable change (Fig. 6.15). Modern economic growth has reversed the residential pattern that existed since the beginning of settled agriculture some 10,000 years ago—from a situation where most people lived in rural areas to one where most now live in urban centers or their suburban and ex-urban appendages.

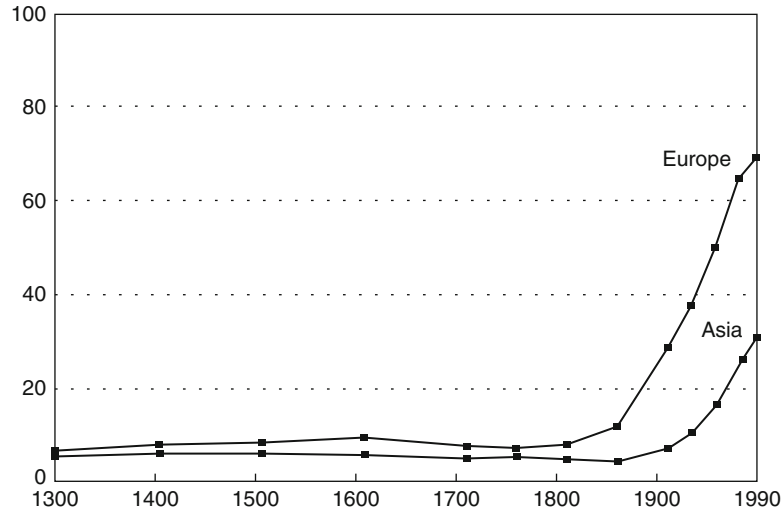


Fig. 6.15 Percentage of population in urban areas, Europe, and Asia, 1300–1990 (Source: United Nations 1977)

Table 6.2 Turning points in demographic measures and growth of GDP per capita in seven countries

	(1)	(2)	(3)	(4)	(5)
	Approximate turning point			Deviation from turning point in GDP per capita, years	
	GDP per capita	Life expectancy at birth (e_0)	Total fertility rate (TFR)	e_0 (2)–(1)	TFR (3)–(1)
United Kingdom	1820	1871	1881	+51	+61
France	1820	1893	1881	+73	+61
United States	1830	1890	1830	+60	0
Sweden	1850	1875	1885	+25	+35
Japan	1870	1923	1950	+53	+80
Brazil	1900	1940	1962	+40	+62
India	1945	1945	1967	0	+22

Source and notes: Easterlin (2000, 2003). The turning point in real GDP per capita is the date at which an increase occurs in the growth rate over at least half a century to around 1% per year or more. The turning point in life expectancy is the date at which a marked improvement (10 years or more) takes place over a period of half a century. The turning point in the total fertility rate is the date at which a decline of around one child per woman takes place within three decades

Social Change

The broad social indicators of QoL previously surveyed also show marked change in countries that have experienced economic growth, but a correlation in time between these indicators and economic growth is much less apparent than in the cross-sectional data. A concise base line for comparing the timing of major changes in the social indicators with economic growth is the date of the takeoff into modern economic growth, that is, the time when the growth rate of GDP per capita over a period of at least half a century reveals a marked increase to a magnitude approaching 1.5% per year or more. Column 1 of Table 6.2 lists such turning points for the seven countries of Fig. 6.14. Although precise dating of the takeoff into modern economic growth is not possible because the evidence available is fragmentary, the dates given in the table agree reasonably well with qualitative impressions in descriptive economic histories of these countries. The gradual spread of modern economic growth from Western Europe to, in rough order, its overseas offshoots, the rest of Europe, Japan, Latin America, and the rest of Asia is also reflected in a very approximate way by the seven countries listed. Our interest here is whether major social indicators of quality of life—life expectancy, fertility, and education—also exhibit marked

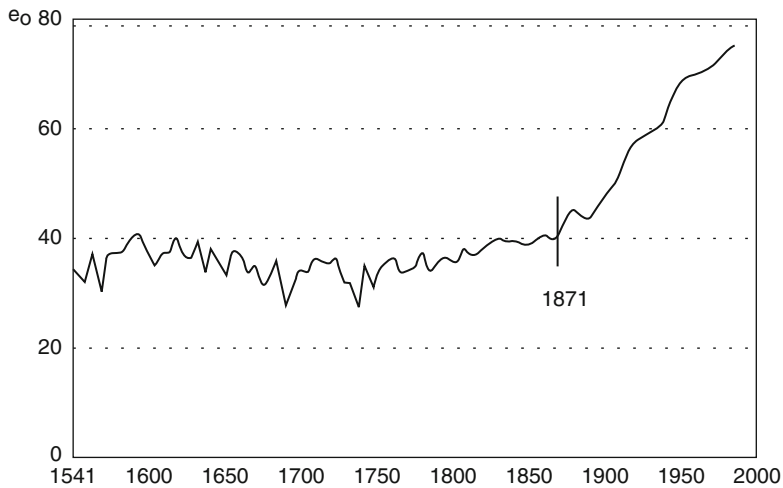


Fig. 6.16 Life expectancy in England and Wales since the sixteenth century. (Source: 1541–1871, Wrigley and Schofield (1981, p. 230); 1871 to 1945–1947, Keyfitz and Flieger (1968, pp. 36–9); 1950–1955 to 1990–1995, United Nations (1995))

turning points and, if so, whether these turning points are reasonably concurrent with those for modern economic growth shown in the table.

On the question of whether significant turning points in major social indicators are apparent, the answer, as previously suggested, is yes. An illustration of such a turning point is given in Fig. 6.16 for life expectancy at birth in Great Britain. This figure is based on an exceptional time series of annual data going all the way back to 1541, the product of the prodigious labor of two British economic historians (Wrigley and Schofield 1981). The abrupt upturn in the series around 1871 is readily apparent to the naked eye.

Thanks to the research efforts of demographers who have produced similar but somewhat shorter historical time series not only for life expectancy, but also childbearing, similar turning points in both life expectancy and fertility can be dated for all seven of the countries under consideration here. The first three columns of Table 6.2 bring together the turning points in these demographic measures along with those for GDP per capita; the last two columns, those in which we are especially interested, present the deviations of the turning points of the demographic series from that in GDP per capita.

Clearly, the typical pattern in this group of countries is that the upturn in life expectancy lags that in GDP per capita by a considerable number of years, and the downturn in fertility, usually by even more. A few exceptions are apparent, however. In India, the takeoffs in life expectancy and GDP per capita are concurrent; in the United States, the onset of fertility decline and rapid growth of GDP per capita also occur together. Moreover, although the typical pattern for the present set of countries is for takeoffs in the demographic indicators to lag that in economic growth, a broader country sample would show that this is not always the case. In sub-Saharan Africa marked upturns in life expectancy in the last half of the twentieth century have occurred in the absence of a takeoff into economic growth (Easterlin 2000), and indications of fertility downturns are also starting to appear. Thus, the association between the demographic measures, on the one hand, and economic growth, on the other, that one would expect based on the cross-sectional data is not usually found in time series data.

Scholars of the history of education have not produced historical series of school enrollment, literacy, or educational attainment comparable to those that demographers and economic historians have constructed for life expectancy and fertility. Nevertheless, enough fragmentary data are available to assess the proposition that in the countries under study here, a takeoff in universal schooling occurred at the same time as the onset of modern economic growth.

Table 6.3 gives the school enrollment and literacy rate in each of our seven countries at or around the time of takeoff into modern economic growth. Although these schooling rates are fairly rough estimates, the sizeable magnitudes of the extent of schooling in most of these countries at the dates listed contrast strikingly with the worldwide state of very low school enrollment and literacy well into the twentieth century (Easterlin 1965). Clearly, in most of the countries in the table schooling was already well advanced before the takeoff into modern economic growth. The contrast with

Table 6.3 School enrollment rate and adult literacy at or near the turning point in GDP per capita in seven countries

	(1)	(2)	(3)	(4)	(5)
	Turning point in GDP per capita	School enrollment rate		Adult literacy rate	
		Date	Percent	Date	Percent
United Kingdom	1820	1830	42	1850	68
France	1820	1830	39	1850	58
United States	1830	1830	56	1850	77
Sweden	1850	1830	66	1850	90
Japan	1870	1830	30	1850	26
Brazil	1900	1910	12	1950	49
India	1945	1950	20	1950	19

Source: Easterlin (1996, 2000, 2003)

the patterns for life expectancy and fertility is noteworthy. Whereas the demographic indicators for these countries typically lag substantially the onset of modern economic growth, a considerable growth of schooling occurred in a number of these countries before the takeoff into economic growth, and probably considerably before, because the initial expansion of schooling often occurred rather slowly. Equally noteworthy is the similarity that the pattern for education shares in common with those for life expectancy and fertility, namely that the advent of rapid improvement in the indicator often does not occur concurrently with that in GDP per capita. For education, as for the demographic indicators, the simple association between economic growth and quality of life evident in the cross section is not reproduced in the time series data.

Political Democracy

Historical measures of political democracy are scarce, but one available for the countries included here is "legislative effectiveness," an indicator of whether a legislature already exists and how important a role it plays in political decision making, based on the judgments of knowledgeable scholars (Banks 1971). For all of the seven countries under study here, a legislature already existed at or near the takeoff into modern economic growth, and the legislature was at least partly effective (Table 6.4). This central institution of political democracy was clearly not an effect of economic growth in these countries, but must have arisen from forces operating prior to the onset of modern economic growth.

This does not mean that political democracy is an invariable antecedent of modern economic growth. In the last half of the twentieth century, economic growth has occurred at an unprecedented rate in most of the less developed world outside of sub-Saharan Africa under circumstances where legislative restraints on the executive branch of government have typically been quite limited or nonexistent (Table 6.5, col. 1). Moreover, despite unprecedentedly high rates of economic growth in this period in many less developed areas, there is no clear-cut movement toward political democracy in these areas. In China, other parts of east Asia, and northern Africa, where effective legislatures have been virtually nonexistent, economic growth has averaged between 2% and 4% per year (columns 2 and 3). In contrast, India, which also has had an economic growth

Table 6.4 Legislative effectiveness rating[a] at or near turning point in GDP per capita in seven countries

	(1)	(2)	(3)
	Turning point in GDP per capita	Legislative effectiveness	
		Date	Rating
United Kingdom	1820	1820–1829	1.0
France	1820	1820–1829	0.7
United States	1830	1820–1829	1.0
Sweden	1850	1820–1829	0.7
Japan	1870	1885	0.7
Brazil	1900	1895–1905	0.7
India	1945	1950–1959	1.0

Source: Easterlin (2000, 2003)

[a]Scaled as follows by scholars with specialized knowledge of the political histories of the individual countries:
Effective legislature = 1.0
Partially effective legislature = 0.7
Ineffective legislature = 0.3
No legislature exists = 0

Table 6.5 Growth rate of real GDP per capita and legislative effectiveness, major less-developed areas, ca. 1950–1994

	(1)	(2)	(3)
	Growth rate of GDP per capita (percent per year)	Legislative effectiveness	
		1950–1959	1990–1994
China	3.8	0.2	0.3
Asia, except China and India	3.7	0.5	0.5
India	2.2	1.0	1.0
Northern Africa	2.1	0.3	0.3
Latin America	1.6	0.7	0.7
Sub-Saharan Africa	0.5	0.5	0.4

Source: Easterlin (2000). For definition of legislative effectiveness, see Table 6.3. Values shown are averages of annual data for indicated period. For regions, measures are weighted averages (by population) of country values. Unweighted averages give similar results

rate exceeding 2%, already had an effective legislature at the start of its takeoff into modern economic growth. Thus, there is little in the experience of the last half of the twentieth century, or the longer historical experience represented by the seven countries studied here, to suggest that the current cross-sectional association between economic growth and political democracy is indicative of a corresponding systematic linkage in historical time.

The frequent contradiction noted here between cross-sectional and time series evidence has been pointed out by others. A study by William Easterly (1999) brings together from a variety of sources 81 indicators of quality of life for the years 1960, 1970, 1980, and 1990 for a large number of countries worldwide. The indicators range across seven areas, several of which have been partly touched on above: (1) individual rights and democracy, (2) political instability and war, (3) education, (4) health, (5) transport and communication, (6) inequality across class and gender, and (7) "bads"—indicators of the prevalence of crime, terrorism, pollution, work injuries, and suicide. (The "bads" are scaled so that a diminution is positively correlated with growth.) This innovative study considers both cross-sectional and time series relationships to real GDP per capita of these indicators. The findings are much like those we have already pointed out. Although there is a strong cross-sectional association between these indicators and real GDP per capita, the time series relationships are quite mixed. Easterly finds that the effect on the indicators of exogenous shifts over time—those due to factors other than economic growth—is typically quite strong compared with the effect of economic growth. Using three different econometric techniques to assess the role of GDP per capita versus exogenous factors in explaining the change in the various indicators, he concludes that GDP per capita has an impact on QoL that is significant, positive, and more important than exogenous factors only for from 6 to 32 out of the total of 81 indicators, depending on the technique of analysis. There are only three of 81 indicators in all three econometric methodologies "for which growth is the primary life-improving and significant determinant: calorie intake, protein intake, and telephones" (p. 262). (Note that two of these three relate to consumption, and the third, to communications density.) Easterly concludes that "the evidence that life gets better during growth is surprisingly uneven" (p. 268). A similar conclusion comes from two papers by Charles Kenny (2005, 2006) that consider both quantitative and qualitative evidence, more limited in range, but extending over a substantially longer time period.

What conclusion emerges from this survey of objective QoL measures? The answer, we believe, is that so far as objective indicators of material living levels are concerned, economic growth, on balance, raises QoL, but there are sometimes significant "bads" associated with this consumption, such as rising pollution and obesity. With regard to where people live, economic growth is clearly responsible for the strong centralization of population in urban places, but whether this is taken as an improvement in QoL is debatable. Finally, when it comes to social and political indicators, an examination of historical experience reveals noticeable timing differences in their improvement from that in GDP per capita, and raises serious doubt that economic

Table 6.6 Cigarette consumption per person 18 years or older, United States, 1900–2000

Year	(1) Cigarette consumption per person 18 years or older
1900	54
1905	70
1910	151
1915	285
1920	665
1925	1,085
1930	1,485
1935	1,564
1940	1,976
1945	3,449
1950	3,522
1955	3,597
1960	4,171
1965	4,259
1970	3,985
1975	4,123
1980	3,851
1985	3,461
1990	2,827
1995	2,515
2000	2,092

Source*:* U.S. Dept. of Agriculture Economic Research Service (2002)

growth has been the primary factor in QoL advances in the social and political realms.

This is not the place to discuss causal factors that are at work other than economic growth, and these factors would doubtless vary according to the indicator under discussion. But it is clear that one determinant of quality of life, public policy, often plays an important causal role independently of economic growth. A simple illustration is provided by another QoL indicator, per capita cigarette consumption. As indicated earlier, measures of quality of life include "bads," whose increase reduces quality of life. Cigarette consumption is clearly one of these. In the United States, following the introduction of the cigarette in the late nineteenth century, per capita consumption rose nearly 80-fold from 1900 to the early 1960s (Table 6.6). This trend is partly a reflection of rising income associated with economic growth, and partly of the impact on consumption of new goods generated by technological advances associated with economic growth. But since its peak in the early 1960s, per capita consumption has steadily declined, and by 2000, consumption was down by one half from the early 1960s and back to the level prevailing at the start of World War II. This decline is clearly due to the breakthrough in knowledge that established the adverse effect on health of cigarette smoking and the dissemination of this knowledge via public health policies and the health industry. Cross-sectional data underscore this conclusion (Fig. 6.17). Unlike the previous graphs, a plot of male adult smoking against GDP per capita does not reveal a strong positive association across countries. To the naked eye, there is no clear relationship, and a fitted regression, in fact, reveals a slightly negative but statistically significant association. This result is because the high-income countries are those who have first acted vigorously via public policy to curtail smoking. Had this graph been plotted with 1960s data, the more common consumption pattern would have prevailed—high levels of GDP per capita associated with higher prevalence of smoking.

An implication of the evidence of cigarette consumption is that "bads" associated with economic growth—air pollution, obesity, and the like—are amenable to correction with appropriate public policies. But what the evidence on smoking illustrates more generally is the important role that public policy may play in influencing QoL. The cigarette experience is a contemporary example of the central role of public policy in promoting health and life expectancy more generally. The great breakthroughs in health knowledge came with the sanitation movement and validation of the germ theory of disease in the middle and latter half of the nineteenth century. This knowledge led to the development of a new technology for controlling contagious disease, and this technology was very largely implemented by public policy through the establishment of a public health system (Easterlin 2004, Chaps. 6, 7). In like manner, the disjunction between the advance of schooling and growth of GDP per capita is arguably a reflection of the important and independent role played by governments in establishing universal schooling. If social and political indicators of QoL are, at present, positively associated with GDP per capita, it is often because the countries that first implemented the new production technology underlying modern economic growth were also the first to introduce, often via public policy, new advances in knowledge in the social and political realms.

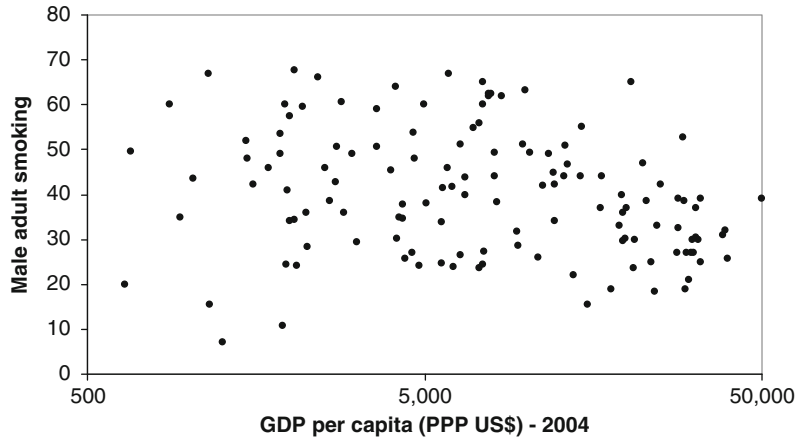


Fig. 6.17 Male adult smoking and GDP per capita, 131 countries, 1997–2003 (Source: Mackay and Eriksen (2002), and UNDP (2006))

Subjective Indicators

Subjective indicators of QoL are obtained from surveys in which respondents report on their feelings of well-being, that is, their *subjective* well-being (SWB). Two measures are commonly used to study the relation between economic growth and SWB. The first is happiness. A typical survey question is that used in the United States General Social Survey (GSS): Taken all together, how would you say things are these days—would you say that you are very happy, pretty happy, or not too happy? To facilitate analysis, the responses are often assigned integer values, with a range from least satisfied or happy equal to 1, up to the total number of response options (in the present example, 3). Another often-used question relates to general life satisfaction. In the German Socio-Economic Panel Survey, for example, the following question is asked: We would like to ask you about your satisfaction with your life in general. Please answer according to the following scale where "0" means completely dissatisfied, "10" means completely satisfied: How satisfied are you with your life all things considered?

Over the half century since such survey questions were introduced, a substantial methodological literature has developed regarding the reliability, validity, and comparability of the answers to such questions (Frey and Stutzer 2002a, b; Kahneman et al. 1999; Veenhoven 1993). The consensus is that the responses, although not without their problems, are meaningful and reasonably comparable among groups of individuals. Perhaps the main reason for this is that in answering such questions, people everywhere tend to take into account the same types of things in assessing their well-being. These are the things that occupy most of their time and are somewhat within their control, namely making a living, raising a family, health, and work.

In what follows, we look first at studies examining the relation between SWB and economic growth at a point in time, where economic growth is, as above, indexed by real GDP per capita. Then we consider how SWB changes over time as countries experience rising GDP per capita.

Cross-Sectional Patterns

The generally accepted cross-sectional finding on the relation between happiness and GDP per capita is that happiness is lower in poorer countries and increases at a diminishing rate as the level of GDP per capita increases. Scholars in psychology, sociology, economics, and political science who have made major contributions to the study of SWB concur on this assertion (Diener et al. 1993; cf. also Diener and Biswas-Diener 2002; Veenhoven 1991; Frey and Stutzer 2002a; Inglehart 1997, 2000; Layard 2005). The policy appeal of this generalization is great because it implies that raising the incomes of poor countries will raise their well-being considerably, while an increase of equal dollar amount for rich countries will have only a small or negligible effect on happiness. The typical basis for this generalization is a simple bivariate comparison of happiness or life satisfaction with GDP or GNP per capita without controls for other possible determinants

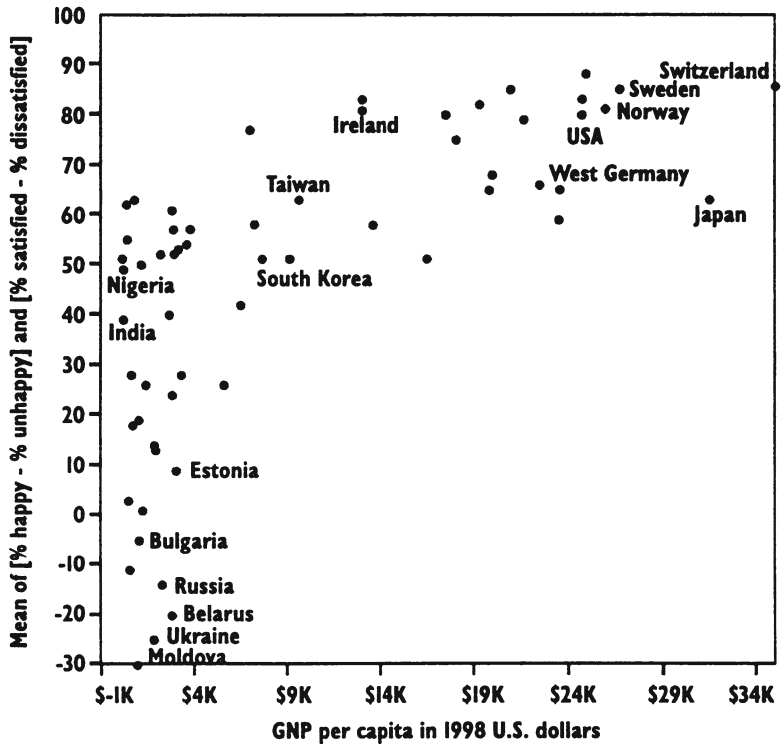


Fig. 6.18 Subjective well-being and GNP per capita, 60 countries, ca, 1990–1996 (Source: Inglehart (2000), p. 217)

of SWB, using averages for a number of countries at a single point (or period) in time, as illustrated in Fig. 6.18. A curve fitted to the data in the figure would imply that among countries with real GNP per capita less than $9,000, happiness rises rapidly as one goes from poorer to slightly richer countries. In contrast, among countries where GNP per capita exceeds $9,000, there is little improvement in happiness as affluence grows.

Similar comparisons within countries of happiness with household income have yielded the same diminishing returns pattern and are thought to buttress the cross-country findings. Figure 6.19, for example, presents data on mean happiness and mean income in the United States for persons arrayed from low to high in terms of household income. The diminishing happiness returns pattern in the figure is typical of within-country comparisons of happiness and income at a point in time (cf. Argyle 1999). The within-country pattern resembles that in cross-country comparisons of the type illustrated by Fig. 6.18. Clearly, in the cross section, both within- and across-country studies point to a diminishing returns relation of happiness to real GDP per capita.

Time Series

If there are diminishing returns to income in terms of happiness, as the cross-sectional studies suggest, then the point-of-time pattern should be reproduced as a country actually experiences rising GDP per capita (Easterlin 2005a). Empirical verification of the cross-sectional relation with time series data has been handicapped by a lack of historical series for SWB. The earliest study, one of the United States from 1946 through the early 1970s found a pattern of no significant trend in happiness as GDP per capita increased. As shown in Fig. 6.20, this result has subsequently been found to prevail for a later period as well (Easterlin 1974, 2005b).

Studies of other high-income nations also suggest that typically, SWB does not increase as GDP per capita grows (Inglehart and Klingemann 2000; Diener and Oshi 2000; Blanchflower and Oswald 2004). This is not to say that SWB is necessarily constant as GDP per capita rises. In the initial study of the United States, there is a growth in happiness from around 1946–1960, followed by a return by the early 1970s to the 1946

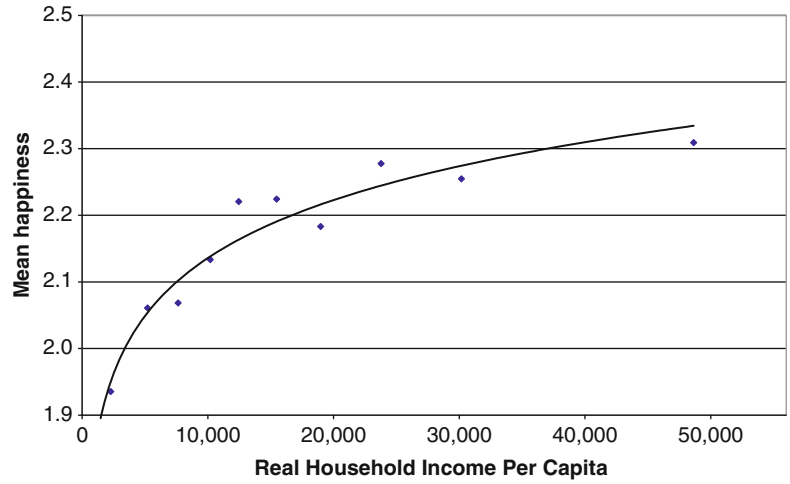


Fig. 6.19 Happiness and per capita income, United States, 1994 (Source: Davis and Smith 2002)

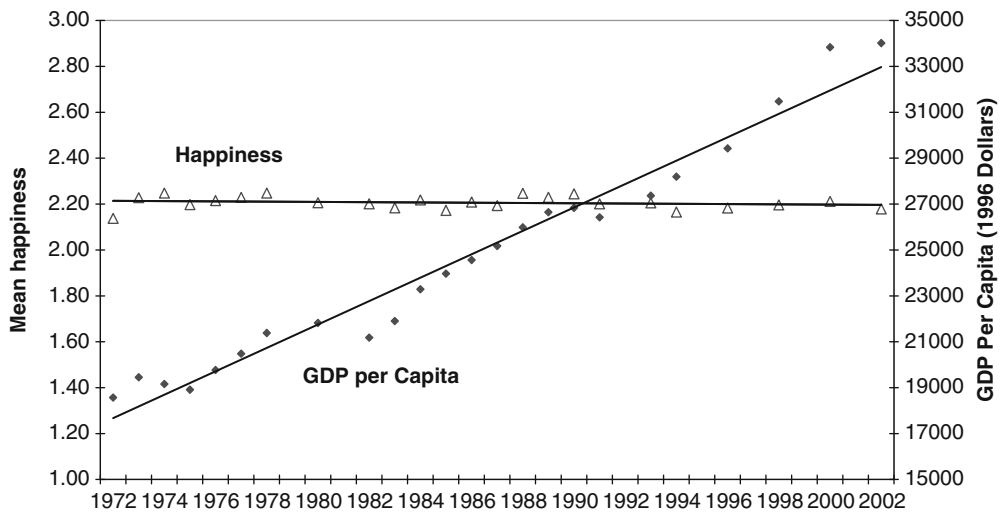


Fig. 6.20 Happiness and real GDP per capita, United States, 1972–2002 (Source: Davis and Smith 2002; U.S. Census Bureau 2003)

level (Easterlin 1974). Studies of European countries sometimes find increasing SWB accompanying economic growth in one country, constancy of SWB in another, and declining SWB in a third. On average, however, there is no significant improvement in SWB as GDP per capita grows.

The increase in GDP per capita in such time series studies is fairly substantial—often a doubling or more. The usual constancy of SWB in the face of rising GDP per capita has typically been reconciled with the cross-sectional pattern in Fig. 6.18 on the grounds that the time series observations for developed nations correspond to the upper-income range of the cross-sectional studies where happiness changes little or not at all as real income rises.

The first serious challenge to this interpretation of the cross-sectional results was found in SWB data for Japan covering the period from the late 1950s to the late 1980s (Easterlin 1995). In the late 1950s, Japan was poorer than were many developing countries at the end of the twentieth century. Subsequently, Japan's GDP per capita multiplied a phenomenal fivefold in three decades, at that time a record rate of economic growth. If Japan had followed the pattern observed in the

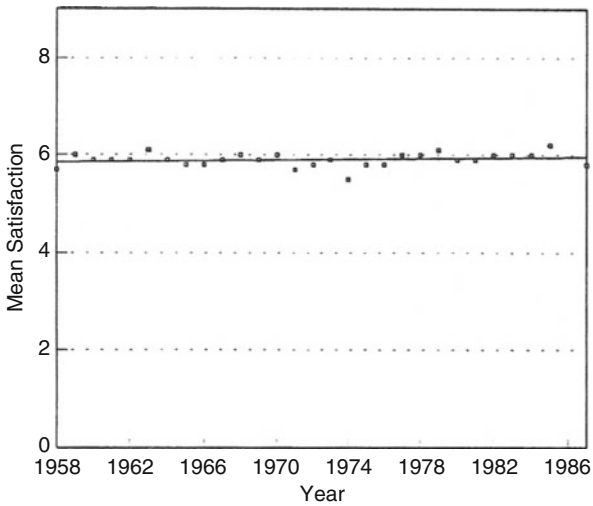


Fig. 6.21 Mean subjective well-being, Japan 1958–1987 (Source and notes: Veenhoven (1993). An ordinary least squares regression is fitted to the data; the coefficient of mean satisfaction on year is not statistically significant)

Table 6.7 Correlations of happiness with GDP per capita for 21 countries, classified by statistical significance and level of country's development in 1996

	(1)	(2)	(3)	(4)
Level of development	Number of countries	Significance of coefficient		
		Positive	None	Negative
All countries	21	6	14	1
High	5	2	3	0
Medium	7	2	4	1
Low	9	2	7	0

Source: Easterlin (2005b)

cross-sectional data, SWB should have risen noticeably over this period as Japan progressed from a poor to a rich nation. In fact, Japan's SWB remained constant, following the horizontal time series pattern usually observed in the more developed nations (Fig. 6.21).

In a more comprehensive recent study of time series data, Hagerty and Veenhoven (2003) claim to find support—though of a somewhat mixed nature—for a positive association between happiness and income, not only in poor, but rich countries as well. They bring together data for 21 countries, nine of whom are classified as low income, covering periods ranging from 11 to 38 years. They state (p.12) that "wealth is positively correlated with happiness for 14 of the 21 countries…." As they recognize, however, this generalization is not based on statistical significance. When account is taken of significance, one obtains the results in Table 6.7. In two thirds of the 21 nations, there is no significant relation between happiness and GDP per capita; six have a positive relation, and one, negative.

In Hagerty and Veenhoven's group of poorer countries, the typical result is the same as for their higher-income countries—no improvement in happiness as GDP per capita grows. Indeed, among their low-income countries, the proportion with a significant positive coefficient, two out of nine, is less than in the middle- or high-income group, the opposite of what one would expect based on the diminishing returns relationship observed in cross-sectional studies.

The rates of economic growth per decade for the 21 nations in the Hagerty–Veenhoven analysis range from a low of –9% to a high of 88%. If one selects seven European Union members plus the United States, who are highly integrated economically and culturally, one finds they are all clustered together with very similar economic growth rates, from 16% to 23% per decade, over almost 25 years. Does happiness rise in these countries, and, if so, at similar rates? The answer is no. In three of these countries happiness increases, in four it is unchanged, and in one it declines. The disparate trends in happiness for these countries suggest that, since economic growth is so much alike, the different trends in happiness must be due to factors other than economic growth.

Recently, limited evidence has started to become available for China, a low-income country of special interest because of its phenomenal rate of economic growth. In the short period from 1994 to 2005, average real income in China increased by 250%. In the same period, the proportion of survey respondents satisfied "with the way things are going in your life today" fell from almost 80 to under 70%. (Kahneman and Krueger 2006, p. 16). The evidence for China is consistent with that for other countries, both rich and poor—economic growth is not typically accompanied by greater happiness.

A very recent working paper by Stevenson and Wolfers (2008) claims to find a positive association between happiness and economic growth. Their analysis, however, fails to differentiate between the short-term and long-term relation of subjective well-being and GDP per capita. It is well established that fluctuations in economic conditions affect subjective well-being (Di Tella et al. 2001). This is strikingly so for the transition countries of central and Eastern Europe since 1990, where the shorter term contraction and expansion movement has often lasted more than a decade

(Easterlin 2009). When the observations for these countries are deleted from the Stevenson–Wolfers analysis (Stevenson and Wolfers 2008, Fig. 15), their significant positive relation between subjective well-being and GDP per capita no longer holds.

The limited evidence so far available thus suggests that in both rich and poor countries, economic growth does not raise subjective well-being (for more recent evidence, see Easterlin 2010, Chaps. 3–5 and Easterlin and others 2010). Moreover, the fact that countries with similar rates of economic growth may have quite different happiness trends implies that factors other than economic growth are important in determining what happens to subjective well-being. Clearly, there is need for more comprehensive time series studies that examine the effect on happiness, not just of economic growth but the variety of factors at work, such as health, family circumstances, unemployment, and the like, including the effects of public policies. But the results for subjective indicators, like those for objective indicators, caution against the use of cross-sectional patterns to infer time series relationships between economic growth and quality of life.

Conclusion

Although this survey is far from exhaustive, what can be said, by way of brief summary, on the relation between QoL and modern economic growth as evidenced by the cross-sectional and time series data assembled here?

If one focuses on objective indicators and material well-being, then there can be no disputing that modern economic growth has improved quality of life. With economic growth come markedly larger amounts of food, clothing, and shelter per capita, as well as sweeping qualitative changes in the level of living. If, however, it is recognized that modern economic growth has also been the prime mover in the concentration of population in cities, large and small, then reservations start to arise about the benefits of economic growth because of the congestion and air, water, and noise pollution fostered by urban concentrations. To this must be added the negative spin-offs of ever-rising consumption, such as carbon dioxide emissions of motor vehicles and increased fat accompanying higher food intake. Of course, appropriate public policies may offset these "bads," as has happened in regard to cigarette smoking. But public policy often operates independently of economic growth, and is by no means an inevitable accompaniment.

As the QoL criteria are broadened to encompass objective indicators in the social and political areas, such as health, education, and political and human rights, the central role of economic growth becomes even more dubious. This is made clear by the typical failure of time series evidence to reproduce off-cited cross-sectional patterns. Economic growth may make possible advances in the social and political realms by making more resources available, but the evidence makes it clear that such a result is not sure to occur.

Finally, if one turns to subjective measures of well-being rather than objective indicators, the breakdown between economic growth and quality of life becomes even greater. Although the evidence remains limited, the common pattern both in rich and poor countries is that typically, increases in per capita income ranging from a doubling to quintupling fail to raise levels of happiness and life satisfaction. People may have many more goods and a much wider variety, but whether that means they find their lives more satisfying remains questionable.

References

Argyle, M. (1999). Causes and correlates of happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 353–373). New York: Russell Sage.

Bairoch, P. (1988). *Cities and economic development*. Chicago: University of Chicago Press.

Banks, A. S. (1971). *Cross-polity time series data*. Cambridge: The MIT Press.

Barro, R. J. (1997). *Determinants of economic growth: A cross-country empirical study*. Cambridge: The MIT Press.

Blanchflower, D. G., & Oswald, A. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics, 88*, 1359–1386.

Brady, D. S. (1972). Consumption and the style of life. In L. E. Davis, R. A. Easterlin, & W. N. Parker (Eds.), *American economic growth: An Economist's history of the united states* (pp. 61–89). New York: Harper and Row.

Caldwell, J. C. (1986). Routes to Low mortality in poor countries. *Population and Development Review, 12*(2), 171–220.

Cox, W. M., & Alm, R. (1999). *Myths of rich and poor*. New York: Basic Books.

Davis, J. A., & T. W. Smith. (2002). *General social surveys, 1972–2002*. [machine-readable data file] Chicago: National Opinion Research Center.

Di Tella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *The American Economic Review, 91*(1), 335–341.

Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? A literature review and guide to needed research. *Social Indicators Research, 57*, 119–169.

Diener, E., & Oshi, S. (2000). Money and happiness: Income and subjective well-being across nations. In E. Diener & E. M. Suh (Eds.), *Culture and subjective well-being* (pp. 185–218). Cambridge: The MIT Press.

Diener, E., Sandvik, E., Seidlitz, L., & Diener, M. (1993). The relationship between income and subjective well-being: Relative or absolute? *Social Indicators Research, 28*, 195–223.

Easterlin, R. A. (1965). A note on the evidence of history. In C. A. Anderson & M. J. Bowman (Eds.), *Education and economic growth* (pp. 422–429). Chicago: Aldine.

Easterlin, R. A. (1974). Does economic growth improve the human Lot? In P. A. David & M. W. Reder (Eds.), *Nations and households in economic growth: Essays in honor of Moses Abramovitz*. New York: Academic.

Easterlin, R. A. (1981). Why isn't the whole world developed. *The Journal of Economic History, XLI*(1), 1–19.

Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization, 27*, 1–34.

Easterlin, R. A. (1996). *Growth triumphant: The twenty-first century in historical perspective*. Ann Arbor: University of Michigan Press.

Easterlin, R. A. (1999). Twentieth century American population growth. In S. Engerman & R. E. Gallman (Eds.), *The Cambridge economic history of the United States, vol. III. The twentieth century*. New York: Cambridge University Press.

Easterlin, R. A. (2000). The worldwide standard of living since 1800. *Journal of Economic Perspectives, 14*(1), 7–26.

Easterlin, R. A. (2003). Living standards. In J. Mokyr (Ed.), *Oxford encyclopedia of economic history* (Vol. 3). Oxford: Oxford University Press.

Easterlin, R. A. (2004). *The reluctant economist: Perspectives on economics, economic history, and demography*. New York: Cambridge University Press.

Easterlin, R. A. (2005a). Diminishing marginal utility of income? Caveat Emptor. *Social Indicators Research, 70*, 243–255.

Easterlin, R. A. (2005b). Feeding the illusion of growth and happiness: A reply to Hagerty and Veenhoven. *Social Indicators Research, 74*, 429–443.

Easterlin, R. A. (2009). Lost in transition: Life satisfaction on the road to capitalism. *Journal of Economic Behavior and Organization, 71*, 130–145.

Easterlin, R. A. (2010). *Happiness, growth, and the life cycle*. New York: Oxford University Press.

Easterlin, R. A., Angelescu, L., Switek, M., Sawangfa, O., & Zweig, J. S. (2010). The happiness income paradox revisited. *Proceedings of the National Academy of Sciences, 107*, 22463–22468.

Easterly, W. (1999). Life during growth. *Journal of Economic Growth, 4*, 239–276.

FAO, Food and Agricultural Organization of the United Nations. (2004). *FAO statistical yearbook 2005–6* (Vol. 2). Roma: FAO.

Frey, B. S., & Stutzer, A. (2002a). *Happiness and economics*. Princeton: Princeton University Press.

Frey, B. S., & Stutzer, A. (2002b). What can economists learn from happiness research? *Journal of Economic Literature, XL*, 402–435.

Fuguitt, G. V., & Brown, D. L. (1990). Residential preferences and population redistribution 1972–1988. *Demography, 27*(4), 589–600.

Fuguitt, G. V., & Zuiches, J. J. (1975). Residential preferences and population distribution. *Demography, 12*(3), 491–504.

Grossman, G., & Kruger, A. (1991). *Environmental impacts of a north American free trade agreement*. Princeton: Princeton University.

Hagerty, M. R., & Veenhoven, R. (2003). Wealth and happiness revisited – growing national income *does* go with greater happiness. *Social Indicators Research, 64*, 1–27.

Hagerty, M. R., & Veenhoven, R. (2006). Rising happiness in nations 1946–2004: A reply to Easterlin. *Social Indicators Research, 79*, 421–436.

Heston, A., Summers, R., & Atten, B. (2002). *Penn world tables version 6.1*. Philadelphia: Center for International Comparisons at the University of Pennsylvania (CICUP).

Holtz-Eakin, D., & Selden, T. (1995). Stoking the fires: CO_2 Emissions and economic growth. *Journal of Public Economics, 57*, 85–101.

Humana, C. (1992). *World human rights guide* (3rd ed.). Oxford: Oxford University Press.

Inglehart, R. (1988). The renaissance of political culture. *American Political Science Review, 82*(4), 1203–1230.

Inglehart, R. (1997). *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*. Princeton: Princeton University Press.

Inglehart, R. (2000). Globalization and postmodern values. *The Washington Quarterly, 23*(1), 215–228.

Inglehart, R., & Klingemann, H.-D. (2000). Genes, culture, democracy, and happiness. In E. Diener & E. M. Suh (Eds.), *Culture and subjective well-being* (pp. 165–183). Cambridge: The MIT Press.

Inkeles, A. (Ed.). (1991). *On measuring democracy: Its consequences and concomitants*. New Brunswick: Transaction Publishers.

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives, 20*, 3–24.

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage.

Kenny, C. (2005). *There's more to life than money: Examining the link between income, health and education*. Mimeo: World Bank.

Kenny, C. (2006). Were people in the past poor and miserable? *Kyklos, 59*, 275–306.

Keyfitz, N., & Flieger, W. (1968). *World population*. Chicago: University of Chicago Press.

Kuznets, S. (1966). *Modern economic growth: Rate, structure and spread*. New Haven/London: Yale University Press.

Layard, R. (2005). *Happiness: Lessons from a new science*. New York: Penguin Press.

Lebergott, S. (1993). *Pursuing happiness*. Princeton: Princeton University Press.

Lebergott, S. (1996). *Consumer expenditures. New measures & old motives*. Princeton: Princeton University Press.

Lipset, S. M. (1959). Some social requisites of democracy: Economic development and political legitimacy. *American Sociological Review, 59*(February), 1–22.

Mackay, J., & Eriksen, M. (2002). *The tobacco atlas*. Geneva: World Health Organization.

Maddison, A. (2003). *The world economy: Historical statistics* (CD-ROM). Paris: Organization for Economic Co-operation and Development.

Marshall, M. G., & Jaggers, K. (2004). *Political regime characteristics and transitions, 1800–2002* (Polity IV Project). College Park: University of Maryland.

Merrick, T. W., & Graham, D. H. (1979). *Population and economic development in brazil: 1800 to the present*. Baltimore: Johns Hopkins University Press.

Offer, A. (2006). *The challenge of affluence: Self-control and well-being in the United States and Britain since 1950*. Oxford: Oxford University Press.

Oswald, A. J., & Powdthavee, N. (2007). Obesity, unhappiness, and the challenge of affluence: Theory and evidence. *The Economic Journal, 117*, F441–F454.

Portney, P. R. (2000). Environmental problems and policy: 2000–2050. *Journal of Economic Perspectives, 14*(1), 199–206.

Pritchett, L., & Summers, L. H. (1996). Wealthier is healthier. *Journal of Human Resources, XXXI*(4), 841–868.

Schofield, R., & Reher, D. (1991). The decline of mortality in Europe. In R. Schofield, D. Reher, & A. Bideau (Eds.), *The decline of mortality in Europe* (pp. 1–17). Oxford: Clarendon.

Shafik, N. (1994). Economic development and environmental quality: An econometric analysis. *Oxford Economic Papers, 46*, 757–773.

Stevenson, B., & Wolfers, J. (2008). Economic growth and subjective well-being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity*, *39*(1 (Spring)), 1–87.

Titmuss, R. M. (1966). *Essays on the welfare state*. London: Unwin University Press.

UNDP (UN Development Program). (2006). *Human development report, 2005*. Oxford: Oxford University Press for UNDP.

United Nation. (1995). *Demographic indicators 1950–2050 (1994 revision)*. New York: United Nations.

United Nations. (1977). *Population bulletin of the United Nations, No. 8. 1976.* New York: United Nations.

United Nations. (2004). *World urbanization prospects: The 2003 revision*. New York: United Nations. http://esa.un.org/unpp

United Nations. (2005). *World population prospects: The 2004 revision*. New York: United Nations. http://esa.un.org/unpp

United States Census Bureau. (1961). *United States census of population: 1960. Number of inhabitants, United States summary* (Final Report PC(1)-1A). Washington, DC: United Sates Government Printing Office.

United States Census Bureau. (2003). *Statistical abstract of the United States: 2003* (123rd ed.). Washington, DC: GPO.

United States Census Bureau. (2005). *Statistical abstract of the United States: 2006* (125th ed.). Washington, DC: GPO.

United States Department of Agriculture Economic Research Service. (2002). *Tobacco outlook report.* Washington, DC: United States Department of Agriculture Economic Research Service.

Veenhoven, R. (1991). Is happiness relative? *Social Indicators Research, 24*, 1–34.

Veenhoven, R. (1993). *Happiness in nations, subjective appreciation of life in 56 nations 1946–1992*. Rotterdam: Erasmus University.

World Bank (2006). *World development indicators online.* Downloaded at publications.worldbank.org/WDI/

Wrigley, E. A., & Schofield, R. S. (1981). *The population history of England 1541–1871*. Cambridge: Harvard University Press.