

5

GDP, Income Distribution, and Welfare

But how did GDP per head gains affect economic well-being? Within the existing national accounts framework, Sitglitz et al. (2009: 23–25) recommend to look at net rather than gross measures, in order to take into account the depreciation of capital goods. Net National Disposable Income (NNDI) measures income accruing to Spanish nationals, rather than production in Spain, and also accounts for capital consumption. NNDI provides, therefore, a more accurate measure of the impact of economic growth on average incomes than GDP.

In Fig. 5.1, a long-term decline in the NNDI share of GDP is observed. The reason is that as the stock of capital gets larger and its composition shifts from assets with long lives but low returns (i.e. residential construction) to shorter life assets but with higher returns (i.e. machinery), capital consumption increases. The integration of Spain into the global economy since the last quarter of the twentieth century accentuated this process.

Nonetheless, it can be noticed that per capita NNDI grows in parallel with GDP per head, although at a slower pace from 1960 onwards, that resulted in its 13-fold increase over 1850–2015, against 16-fold for per capita GDP (Fig. 5.2 and Table 5.1).

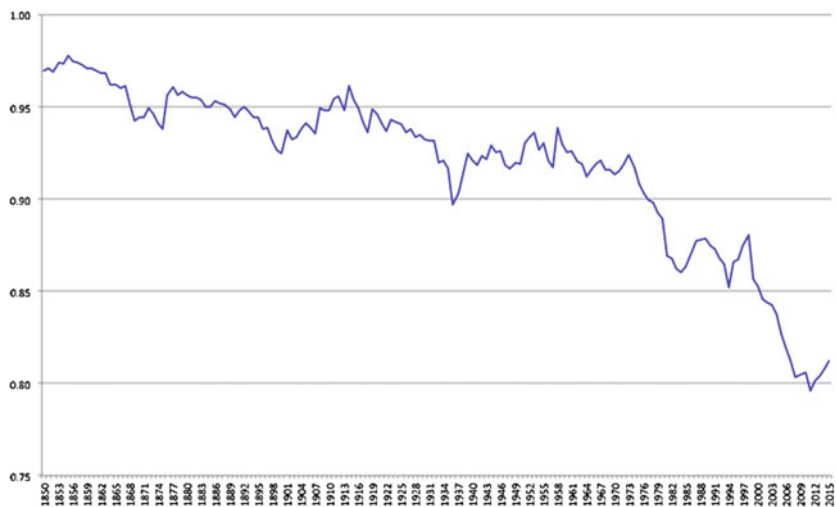


Fig. 5.1 Net national disposable income ratio to GDP 1850–2015 (current prices) (%)

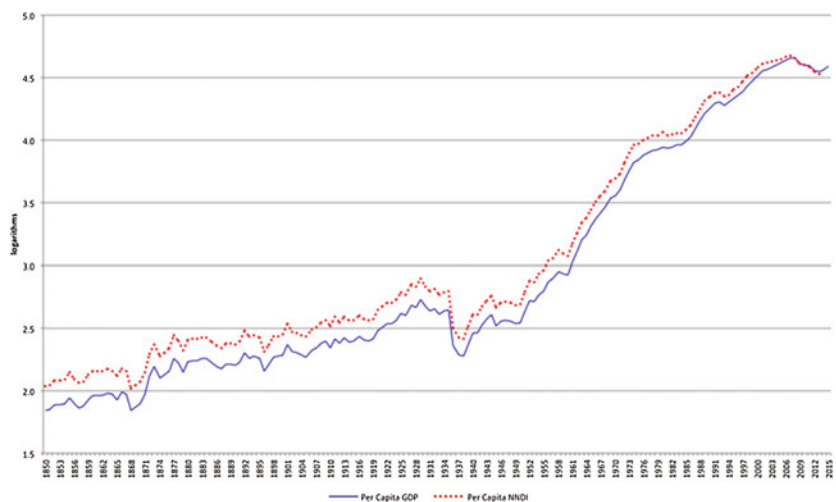


Fig. 5.2 Real per capita GDP and net national disposable income, 1850–2015 (2010 = 100) (logs)

Table 5.1 Real per capita GDP, NNDI, private consumption, and Sen-welfare growth, 1850–2015 (%) (average yearly logarithmic rates)

	Per capita GDP	Per capita NNDI	Per capita private consumption	Sen welfare
1850–2015	1.7	1.5	1.4	1.6
<i>Panel A</i>				
1850–1950	0.7	0.7	0.5	0.5
1950–1974	5.3	5.3	5.2	6.2
1974–2007	2.5	2.2	2.1	2.3
2007–2015	−0.8	−1.6	−1.4	−1.6
<i>Panel B</i>				
1850–1883	1.3	1.2	1.0	1.0
1883–1920	0.6	0.6	0.5	0.1
1920–1929	2.8	2.8	2.9	3.6
1929–1950	−0.9	−1.0	−1.2	−1.0
1950–1958	5.0	5.3	5.3	8.0
1958–1974	5.5	5.2	5.1	5.2
1974–1984	1.4	1.0	0.9	1.5
1984–1992	4.2	4.0	3.9	4.0
1992–2007	2.4	2.0	1.9	1.9
2007–2013	−1.9	−2.4	−2.7	−2.9
2013–2015	2.6	1.1	2.4	2.4
<i>Panel C</i>				
1850–1855	2.1	2.1	1.9	3.8
1855–1866	0.4	0.3	0.4	0.7
1866–1873	2.9	2.8	2.5	2.8
1873–1883	0.6	0.6	0.0	−1.2
1883–1892	0.6	0.6	0.7	2.0
1892–1901	0.7	0.6	0.8	−0.6
1901–1913	0.5	0.5	−0.7	−1.0
1913–1918	−0.6	−0.7	0.6	−2.6
1918–1929	3.1	3.1	3.2	4.4
1929–1935	−1.5	−1.8	−1.0	0.4
1935–1939	−6.9	−6.9	−10.4	−7.8
1939–1944	4.8	4.9	5.1	5.2
1944–1950	−1.0	−1.1	−0.4	−3.2

In their Report, Sitglitz et al. (2009) also advise focusing on household consumption, rather than on total consumption, to capture the effect of growth on material welfare. This way, government consumption that

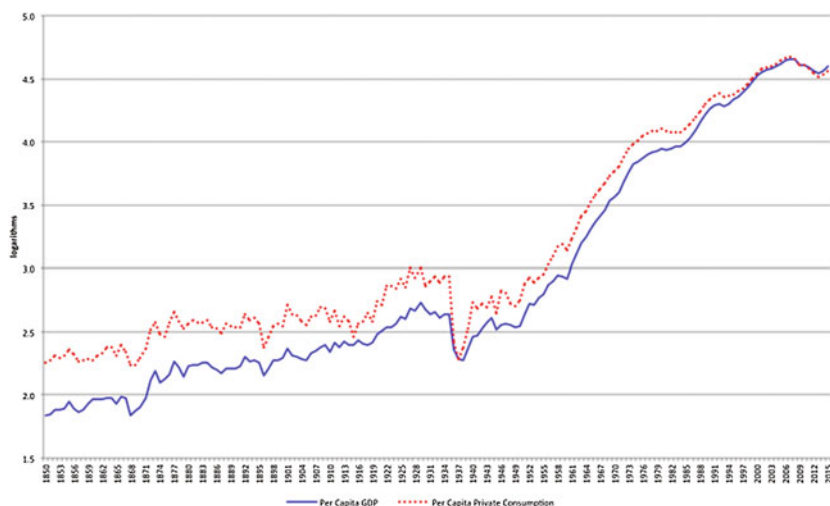


Fig. 5.3 Real per capita GDP and private consumption, 1850–2015 (2010 = 100) (logs)

could be deemed, in Nordhaus and Tobin (1972) words, ‘defensive’ expenditures—namely services that represent inputs for activities that may yield utility—would be excluded.

A look at the behaviour of real private consumption per person shows a narrow parallelism with that of GDP per head, but with a lower rate of growth (Fig. 5.3), as reflected by its declining contribution to GDP (Fig. 1.1), and that implied, nonetheless, multiplying 10 times its initial level over 1850–2015. Solely during the long decade preceding World War I, the Civil War (1936–1939), and the Great Recession (2008–2013) did private consumption growth fall ostensibly behind that of GDP (Table 5.1). In short, it can be suggested that the fruits of growth were passed on to the population, so present consumption was not sacrificed to greater future consumption and, hence, no parallelism can be drawn with the post-1950 experience of former socialist countries in Europe or East Asian countries (Krugman 1994; Young 1995).

Another major objection to GDP per head is that it takes no account of income distribution. In fact, the conviction that averages fail to give ‘indication of how the available resources are distributed across persons or

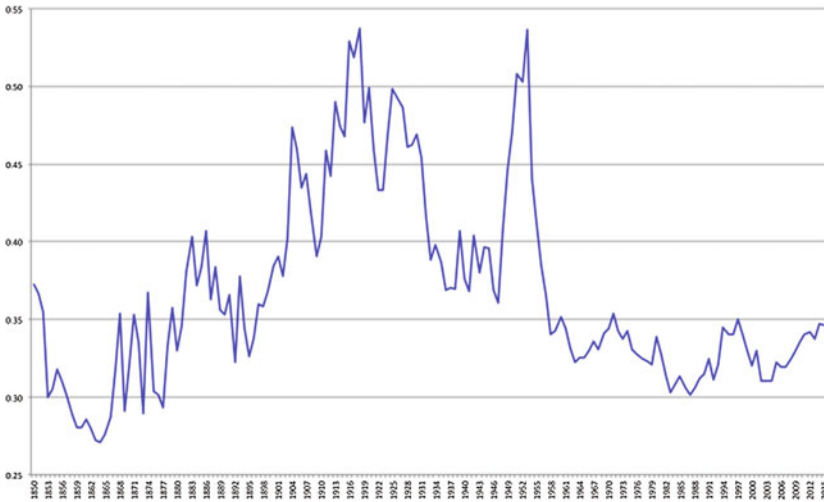


Fig. 5.4 Income inequality, 1850–2015: Gini coefficient. *Source* Prados de la Escosura (2008), 1850–1994; Eurostat 1995–2015

households’ (Stiglitz et al. 2009: 32) recommends that average income should be accompanied by measures of its distribution.

How have the fruits of growth been distributed in Spain? Trends in income distribution measured by the Gini coefficient are presented in Fig. 5.4.¹ Its evolution has not followed a monotonic pattern and different phases can be observed. A long-term rise inequality is noticeable between mid-nineteenth century and World War I reaching a peak in 1918. Then, a sustained inequality reduction took place during the 1920s and early 1930s, stabilizing in the years of the Civil War (1936–1939) and World War II. A sharp reversal was experienced during the late 1940s and early 1950s, with an inequality peak by 1953, similar in size to that of 1918. Then, a dramatic fall in inequality occurred in the late 1950s and early 1960s. Henceforth, income distribution stabilized fluctuating within a narrow 0.30–0.35 Gini range.

A comparison of the evolution of real per capita NNDI and income distribution (Figs. 5.2 and 5.3) shows no trade-off between inequality and growth, by which higher living standards resulting economic growth compensate for higher inequality and vice versa, seems to exist.

Moreover, there is no clear association between them over time. Thus, in the most dynamic phases of economic performance, inequality declined (the 1920s, the Golden Age, 1950–1974), but it also increased (1850–1883); while in years of sluggish performance, inequality deepened (1880–1920, the post-Civil War autarchy), although it shrank too (during the II Republic, 1931–1936, and the transition to democracy, 1975–1984).

But how severe has been inequality in terms of well-being? Branko Milanovic et al. (2011) proposed the concept of Inequality Extraction Ratio, defined as the ratio between the actual Gini [G] and the maximum feasible Gini (G^*), which is obtained as

$$G^* = (\alpha - 1)/\alpha \quad (5.1)$$

Where α = average incomes, expressed in terms of subsistence (1.9 2011 EKS dollars a day).

Thus, the Inequality Extraction Ratio (IER) measures the actual level of inequality as a proportion of its potential maximum. The closer a country is to the maximum potential inequality, the stronger the negative impact of inequality on welfare.

The negative effect of inequality on welfare, as measured by the IER, increased during the early twentieth century peaking at two-thirds of its potential maximum by the end of World War I and, then, declined until the mid-1980s, but for a dramatic reversal at the end of the autarchic period, fluctuating thereafter around one-third of its potential maximum (Fig. 5.5).

It is worth noticing that, in Spain, similar levels of inequality are significantly different in terms of its impact on well-being. For example, although exhibiting similar levels of inequality (around 0.35 Gini), during 1850–1883, actual inequality oscillates around one-half of its potential maximum, while over 1960–2015 it fluctuates around one-third.

But can the effect of changes in income distribution on welfare be quantified? Amartya Sen's (1973) proposed to adjust the level of net national disposable income for the evolution of income distribution. Thus, I have computed the so-called Sen Welfare,

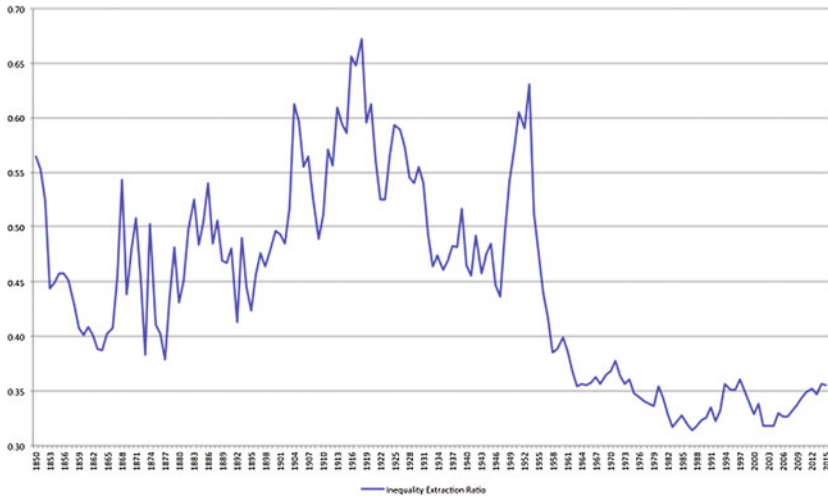


Fig. 5.5 Inequality extraction ratio 1850–2015 Note Actual Gini as a proportion of the maximum potential Gini

$$\text{Sen Welfare} = \text{Real Per capita NNDI} \times (1 - \text{Gini}) \quad (5.2)$$

Figure 5.6 compares GDP per head with the Sen-Welfare measure. It can be observed that except for the early twentieth century—especially in the 1910s and 1920s and in the late 1940s and early mid-1950s—when Sen-Welfare level fell behind per capita GDP, both measures exhibit similar long-run performance.

During the 1920s and, especially, the 1950s, Sen Welfare improved faster than real GDP per person, while this situation reversed from the end of the nineteenth century to the end of World War I. Moreover, in phases of income contractions such as the Civil War and its autarchic aftermath, and the Great Recession (2008–2013), welfare worsened more intensively than GDP per head. On the whole, Sen Welfare increased 13-fold over 1850–2015.

To sum up, net disposable income and private consumption exhibit similar trends to GDP but with less steep acceleration since mid-twentieth century, while the negative impact of inequality on

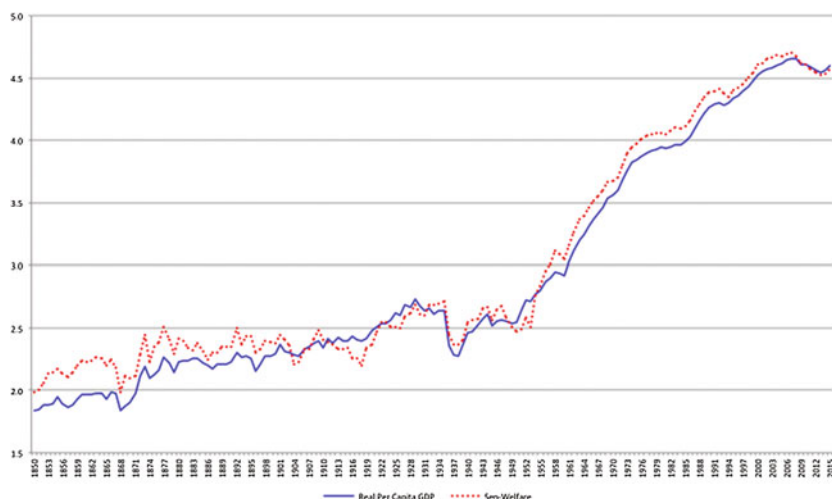


Fig. 5.6 Real per capita GDP and Sen welfare, 1850–2015 (2010 = 100) (logs)

economic welfare was softened from 1960 onwards and inequality decline made significant contributions to well-being in the 1920s and the 1950s. Thus, it can be concluded that in modern Spain long-run economic growth was accompanied by a substantial improvement in material welfare.

A substantive objection to GDP per head is that it fails to incorporate non-income dimensions of well-being. Human welfare is widely viewed as a multidimensional phenomenon, in which per capita income (and its distribution) is only one facet. Critics of GDP as a measure of welfare have signalled the Human Development Index as a better alternative (Coyle 2014). Human development has been defined as ‘a process of enlarging people’s choices’ (UNDP 1990: 10), namely enjoying a healthy life, acquiring knowledge and achieving a decent standard of living, that allow them to leading ‘lives they have reasons to value’ (Sen 1997).

The Human Development Index (HDI), published by the United Nations Development Programme (UNDP), has three dimensions: a healthy life, access to knowledge and other aspects of well-being. It uses reduced forms of these dimensions, namely life expectancy at birth as a proxy for a healthy life, education measures (literacy, schooling) as a short

cut for access to knowledge, and discounted per capita income (its log) as a surrogate for other aspects of well-being (Anand and Sen 2000; UNDP 2001). These are combined into a synthetic measure using a geometric average (UNDP 2010). Since all dimensions are considered indispensable they are assigned equal weights.

It matters how progress in the dimensions of human development is measured. Often social variables (life expectancy, height or literacy) are used, either raw (Acemoglu and Johnson 2007; Becker et al. 2005; Soares; Lindert 2004) or linearly transformed (UNDP 2010). This causes measurement problems when a social variable has asymptotic limits. An example would be life expectancy. Consider two improvements, one from 30 to 40 years and another from 70 to 80 years. These increases are identical in absolute terms, but the second is smaller in proportion to the initial starting level. When original (or linearly transformed, as happens in the case of the UNDP's HDI) values are employed, identical changes in absolute terms result in a smaller measured improvement for the country with the higher starting point, favouring the country with the lower initial level (Sen 1981; Kakwani 1993).

The limitations of linear measures become more evident when quality is taken into account. Life expectancy at birth and literacy and schooling rates are just crude proxies for the actual goals of human development: a long and healthy life and access to knowledge. Research over the last two decades concludes that healthy life expectancy increases in line with total life expectancy, and as life expectancy rises, disability for the same age-cohort falls (Salomon et al. 2012). Similarly, the quality of education, measured in terms of cognitive skills, grows as the quantity of education increases (Hanushek and Kimko 2000; Altinok et al. 2014). The bottom line is that more years of life and education imply higher quality of health and education during childhood and adolescence in both the time series and the cross section.

My alternative to the UNDP's conventional HDI is a historical index of human development (HIHD) in which non-income variables are transformed nonlinearly, rather than linearly as in the HDI, in order to allow for two main facts: (1) increases of the same absolute size represent greater achievements the higher the level at which they take place, and

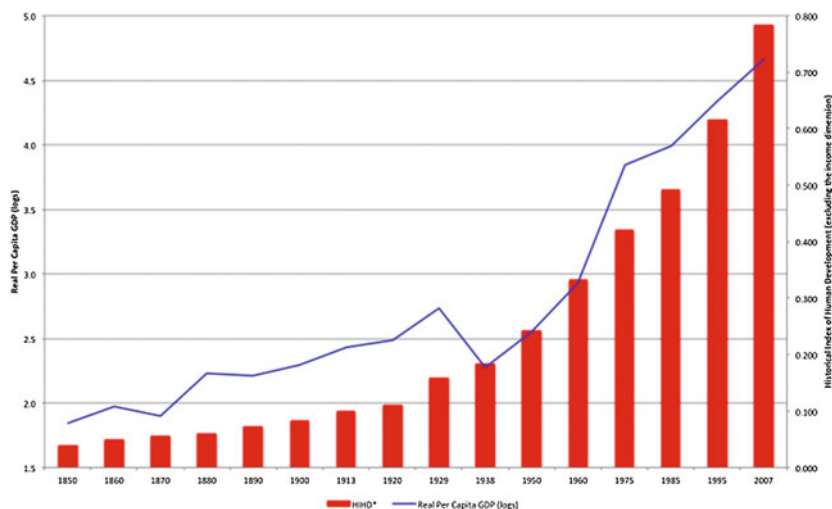


Fig. 5.7 Real per capita GDP (2010 = 100) (logs) and historical index of human development [HIHD*] (excluding income dimension), 1850–2007. *Source* Real per capita GDP, see the text; human development, Prados de la Escosura (2015) and <http://espacioinvestiga.org/home-hihd/countries-hihd/hihd-esp-eng/?lang=en#>

(2) quality improvements are associated with increases in quantity (see Prados de la Escosura 2015).

When per capita GDP and Human Development (in which the income dimension has been excluded) are compared, they exhibit similar long-term trends (Fig. 5.7), although improvements in the Historical Index of Human Development are more intense between 1880 and 1950 and slower thereafter (Table 5.2). A major discrepancy is observed for the 1930s and 1940s, when human development thrived, driven by improving life expectancy at birth—a result of the epidemiological transition related to the diffusion of the germ theory of disease—and broadening primary education, while GDP per head contracted as consequence of the Depression and the Civil War and its autarchic aftermath.

Table 5.2 Real per capita GDP and human development growth, 1850–2007 (%). (average yearly logarithmic rates)

	GDP per head	HIHD*
1850–2007	1.8	1.9
<i>Panel A</i>		
1850–1950	0.7	1.8
1950–1975	5.2	2.2
1975–2007	2.6	1.9
<i>Panel B</i>		
1850–1880	1.3	1.4
1880–1920	0.6	1.6
1920–1929	2.8	3.9
1929–1950	−0.9	2.0
1950–1960	3.7	3.1
1960–1975	6.1	1.6
1975–1985	1.5	1.6
1985–1995	3.4	2.3
1995–2007	2.7	2.0

Source Real per capita GDP, see the text; Human Development (excluding income dimension), Prados de la Escosura (2015) and <http://espacioinvestiga.org/home-hihd/countries-hihd/hihd-esp-eng/?lang=en#>

All in all, it can be concluded that GDP per head captures long-run trends in welfare in Spain, but fails to do it in the short and medium term.

Note

1. The Gini coefficient measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini of 0 represents perfect equality, while an index of 1 (100) implies perfect inequality. This paragraph draws on Prados de la Escosura (2008).

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