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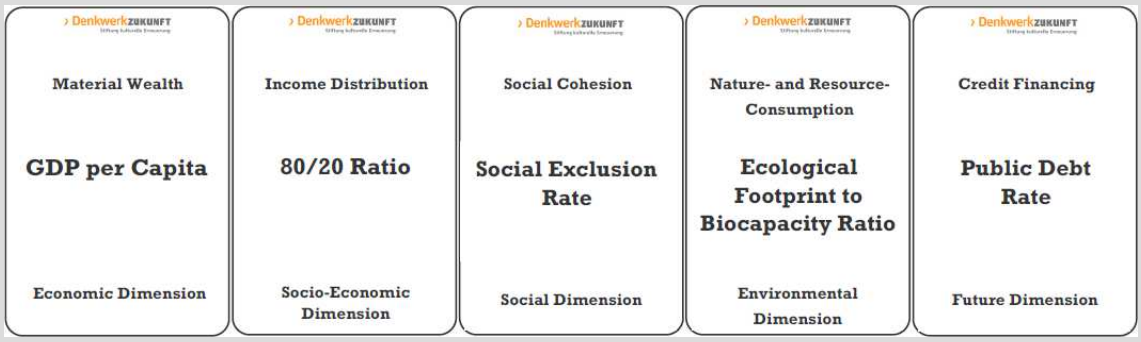
Stiftung kulturelle Erneuerung

The Prosperity Quintet 2011

Measuring Prosperity in Germany and Other Early Industrialised Countries



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1. Defining and Measuring Prosperity

In many societies, perceptions of prosperity are largely determined by how they measure their prosperity. In Germany, as in many other countries, by far the most important measure is gross domestic product (GDP), which is almost exclusively used to document the provision and supply of material goods and commercial services.[1] The result? In these countries, prosperity is mostly seen as material wealth. Economics are the key determinant of success and failure. Increasing the volume of industrial goods and commercial services is thus the key aim in these countries.

But there is more to prosperity. It encompasses satisfying society, stable social relationships, the right to freedom, respecting human dignity, health, education, an intact environment and more besides.[2] But when measuring prosperity, most countries, including Germany, fail to take this non-material wealth into account or use it solely in terms of its contribution to increasing material goods.

To calculate prosperity in its many facets, other indicators are needed alongside GDP. Denkwerk Zukunft sees four as being particularly helpful:

- Distribution of disposable household incomes based on the 80/20 ratio
- The social exclusion rate
- The ecological footprint in relation to global biocapacity
- The public debt rate.

Along with GDP, these four indicators make up a kind of a prosperity quintet which does not entirely illustrate the actual prosperity of a society but comes significantly closer to reality than previous GDP-based assessments.

When compared to GDP, it is a weakness of the measuring methodology promoted by Denkwerk Zukunft that prosperity can no longer be expressed as an easily quantifiable and internationally comparable unit. Its strength, however, is that it leaves no doubt that GDP-based growth has a price which significantly narrows the growth-driven increase in material wealth and in some circumstances can even reverse it. The selected approach makes it clear that today's notions of wealth are largely illusionary and that on the one hand, even rich countries are considerably poorer than they would have people believe, while on the other they have vast prosperity potential of which they are hardly aware.

Prof. Dr. Meinhard Miegel

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1 See the glossary for the definition of gross domestic product (GDP).
2 See Miegel (2010).

2. GDP as an Indicator of Societal Prosperity

That GDP should become the key indicator of prosperity although it was not designed for the task is largely due to the fact that in non-mature economies, material and non-material wealth usually develop more or less in parallel. If, in such countries, the production of goods increases and with it people's incomes and purchasing power, then their health and life expectancy, education and working conditions also increase along with their personal and political freedoms.[3]

Only decades ago, this parallelism in the development of material and non-material wealth also existed in the early industrialised countries in which, right up to the 1970s, only around half as much GDP was generated per capita as is the case today. Since then, the development of material and non-material wealth has increasingly become decoupled, with GDP becoming less and less suited as an overarching indicator of prosperity. Now, it provides only points of reference for material development and even then not very accurately. The reasons for this decoupling are many.

Firstly, once a certain level of material wealth has been reached, the development of material and non-material wealth becomes increasingly asymmetrical. In other words: if material needs are largely satisfied, a disproportionate amount of value is then placed on non-material forms of wealth. In a more or less materially saturated society, health, leisure time, social gatherings, political rights of participation, and similar issues become more important. The result: the former parallel development of material and non-material wealth comes to an end. Not least because non-material forms of wealth are given greater weight.

Secondly, sooner or later, a competition ensues between material and non-material forms of wealth. Ongoing economic growth – with or without increased material wealth – leads in many cases to heavier workloads, and not uncommonly to dwindling job security,[4] greater stress during leisure time, the weakening of family ties, and more diseases of civilisation (lifestyle diseases).[5] In some countries, there

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[3] This applies far less to economically underdeveloped countries because in those countries it is usually only privileged groups who profit from the multiplication of material goods and commercial services and at the cost of the rest of society. This is why the UN developed the Human Development Index (HDI) to measure socio-economic wealth in developing countries (see glossary).

[4] In 2010, 54 percent of Germany's 20 to 24 year-olds, 30 percent of 25 to 34 year-olds and 16 percent of those under 35 worked in non-standard employment conditions such as work placements, temporary work and limited contract positions. See TSN Infratest Politikforschung (2010).

[5] From 1990 to 2008, the proportion of sick days due to mental health problems in the overall number of sick days almost quadrupled from 2.75 to 10.6 percent. Key causes include growing demands for employee flexibility and mobility, accelerated processes due to modern communications technology, growing complexity in decisionmaking processes, and more frequent changes in responsibilities as a result of restructuring measures. See Jobelius (2010).

are signs of a drop in life expectancy despite increasing healthcare provision.[6] The benefits of wealth gained over time are thus negated in a range of different ways.

GDP exaggerates material wealth by the extent of environmental and social erosion

As an indicator of wealth, GDP not only fails to illustrate these negative trends in living conditions, but in many cases it actually measures them as a generator of wealth. Thus, GDP rises with every barrel of crude oil used although its extraction reduces oil resources, accelerates climate change and impairs the environment.[7] The same applies when employees receive mental health counselling to combat burnout syndrome, social workers are deployed in schools as a result of unstable family circumstances, obese patients are treated for diabetes or when raw materials are imported at dumping prices because they are extracted by people in developing countries under dangerous and unhealthy conditions. What is also not indicated is whether GDP growth is bought on the back of ever-growing debt. GDP thus illustrates an over-exaggerated level of wealth as a counterpart to this social, environmental and economic erosion.[8]

Risks in the use of GDP as a primary indicator of prosperity

Concentration on GDP as a primary indicator of prosperity thus poses considerable risk. The greater the effort taken to increase wealth, the greater the wealth-reducing loss and damage to society and the environment. Sooner or later the foundations of wealth become irreversibly damaged and society experiences a drop in both material and non-material wealth.

Benefits of GDP as an indicator of economic strength and material wealth

GDP does, however, have great strengths as an indicator. In particular, if the eroding damage from economic activities is kept at an acceptable level,[9] GDP becomes a suitable indicator when attempting to reflect economic strength and material wealth of a given society. But even then it fails to reflect the distribution of goods and services.

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6 See Regenauer (2009).

7 If environmental damage is remedied, GDP grows apace although at best the status quo is merely restored. For example, in Germany in 2006 around €34 billion was spent on environmental protection measures. See Statistisches Bundesamt (2010a).

8 See also Scherhorn (2010). A financial assessment of the costs of environmental damage and the benefits of environmental protection measures is conducted, among others, by The Economics of Ecosystems and Biodiversity (TEEB) initiative. For example, TEEB estimates that by halving deforestation rates by 2030, global greenhouse gas emissions will be reduced and in turn climate change-related damage can be avoided with a capital value of somewhere in the region of US$ 3.7 billion. See TEEB (2010).

9 When it comes to the environment, this could happen if by introducing emissions trading schemes, environmental tax and statutory thresholds energy and resource consumption become tangibly more expensive and are reduced. However, this would be likely to result in either a slower growth or a drop in the volume of goods and services produced.

The quantity of services is also understated because activities such as housework and voluntary engagement are missing. Especially in mature economies like Germany, more than three quarters of the goods and services consumed are provided by the market or by the state.[10] With GDP as an indicator, these are methodologically collated on the basis of reliable data to allow timely, historic and international comparison.[11] This makes GDP a suitable indicator for economic and fiscal policy activity.[12] As a known quantity in the form of an easy to understand and easily communicated economic indicator, it can also be used by policymakers, businesses and journalists without the need for detailed explanations.

[10] If a monetary value were put on the time spent in Germany on voluntary work and housework, it would represent economic productivity of around €684 billion or a good 30 percent of GDP (as at 2001) (see Schäfer 2004, p.968). If this sum is added to GDP and GDP set in relation to expanded economic productivity, the value of the market-based activities amounts to 77 percent. In Anglo-Saxon and Scandinavian countries, this figure is likely to be higher because more household activities are performed on a commercial services or state-provided basis than in many Central European countries.

[11] GDP is based almost exclusively on monetary values which are derived from prevailing market prices. This largely avoids complex estimation and recalculation processes which are subject to error. In addition, collation and calculation methodologies have improved in recent decades.

[12] The amount of and trends in GDP greatly influence the basis on which state revenue is calculated. This in turn determines the scope in which the public purse makes collective goods and services available to citizens, pays off debt and reduces taxes and levies. Given the short-term availability of GDP data, policymakers are able to respond quickly to changes in economic activity. They can then attempt to counter economic downturns by implementing timely economic stimulus measures.

3. Measuring Prosperity

GDP is thus an important but less than adequate indicator in measuring societal prosperity. Additional indicators are also needed. These must meet the following substantive, methodological and policy-strategic requirements.

3.1 Substantive requirements

As regards content, the data must include as much as possible that constitutes well-being in a society. However, because each society and every person has a different perception of well-being, it is extremely difficult if not impossible to arrive at a general definition of the components of societal prosperity.[13] What goes uncontested, however, is that well-being and happiness depend on people's material and non-material lifestyles and situations. Thus, a prosperity indicator should take in the following dimensions.

Economic Dimension: Material wealth at social and individual level

People need an adequate supply of goods and services. How much and what is available to them largely depends on a society's formal and informal economic activities and the distribution of the material wealth they generate.

Social Dimension: Social cohesion, health and security

Because people are social beings, their well-being is largely defined by social factors. First and foremost these include social inclusion and cohesion, health and security. Additional prosperity aspects are personal freedom, spirituality/religiousness, creativity, experiencing nature, political participation and cultural identity.[14]

These needs are satisfied at collective level, for example through the police, the fire brigade, the healthcare system, the education system, electoral voting, transparent policy structures, and legal protection. At individual level, through self-engagement and tenable interpersonal relationships in a partnership, within the family, and with friends, acquaintances and neighbours.

Environmental dimension: use of nature and resources

Human beings live in and from the ecosystem that surrounds them. If that system becomes impaired, it reduces both the material and non-material wealth of society. Material losses occur if, for example, developed floodplains cause housing settlements to flood or if increasing air pollution results in the introduction of city tolls

[13] For Germany alone, the research institute SINUS (http://www.sinus-institut.de/) categorises ten social groups in which perceptions of wealth differ significantly.

[14] See Ernst Freiberger-Stiftung (2010).

and driving bans, and/or the installation of filter systems. Non-material wealth is impaired if exhaust fumes in the air harm people's health and if land development and housing settlements that blot the landscape reduce people's enjoyment of nature.

Temporal dimension: intertemporal distribution of prosperity

A prosperity indicator should measure not just current prosperity and well-being, but also the basis for future prosperity. This is because people and societies tend to increase their level of wealth and prosperity in the short term by pushing the associated costs into the future. Fitting examples are rising public debt, increasing educational deficits among young people, and the failure to integrate immigrants seen in many Western industrialised countries in past decades. Added to this comes the global decline in biodiversity and ever scarcer fossil fuels. Sooner or later, these trends lead to a rise in interest rates, social contributions, energy prices and integration costs, to increasing air, soil and water pollution, and to unstable social ties and growing socio-economic conflict. These all burden economic, social and environmental prosperity – especially that of our children and our children's children.

Spatial dimension: international distribution of prosperity

The situation is similar when it comes to the international distribution of prosperity. A large portion of the wealth and prosperity accrued by the societies of early industrialised countries stems from the exploitation of natural resources and of people in other parts of the world. This is why prices for many electronic and textile products have dropped in recent decades: factory workers in China and seamstresses in Bangladesh work in what, from a Western perspective, are unacceptable conditions. In many early industrialised countries, the improved air quality is not least a result of the fact that raw materials and consumer goods whose production severely impacts the environment are primarily procured from emerging economies and developing countries.

3.2 Methodological requirements

A prosperity indicator should illustrate complex and difficult to identify issues in a simple way. Data on relevant issues must be collected and then collated into either a single or just a few indicators. To prevent loss of information in this process, the following requirements must be met.

Tried and tested methodology

The methodology used to collect data must be clear and verifiable and have been tested in practice to the greatest extent possible. This applies in particular to processes used in selecting and weighting the dimensions of prosperity, subdividisions and individual indicators, the transformation of data into uniform measures and estimating monetary values.

Good quality, accessible data

The data used in measuring prosperity must describe the situation in as representative a way as possible. They must also be collected regularly to ensure ongoing and timely monitoring of trends in prosperity development. To allow historical comparison, the data must also be traceable to periods in the past.

International comparison: data and methods

To compare prosperity between countries, the methodologies used to calculate and collate data must be standardised at international level.

3.3 Policy and strategy requirements

A prosperity indicator only serves to broaden perceptions of prosperity if it is accepted by policymakers and by the general public. It is thus helpful if prosperity indicators are designed such that they take account of the logic behind policy processes and public debate. This can take priority over substantive and methodological quality requirements.

Easily communicable

In particular, prosperity indicators should be self-explanatory and easy to communicate. Among other things, this calls for a meaningful, readily recognisable name.

Convenience

It should be possible for policymakers to use prosperity indicators in their decisionmaking. They should thus highlight temporal changes in prosperity development. If an indicator rarely responds to change or only does so with huge delays, policymakers are unable to see whether and where action is needed. Nor can they see whether the measures they have already introduced have helped to solve a specific problem. This is what makes GDP so attractive to policymakers as an indicator of wealth, because it meets these requirements when it comes to measuring (market-based) economic activity.

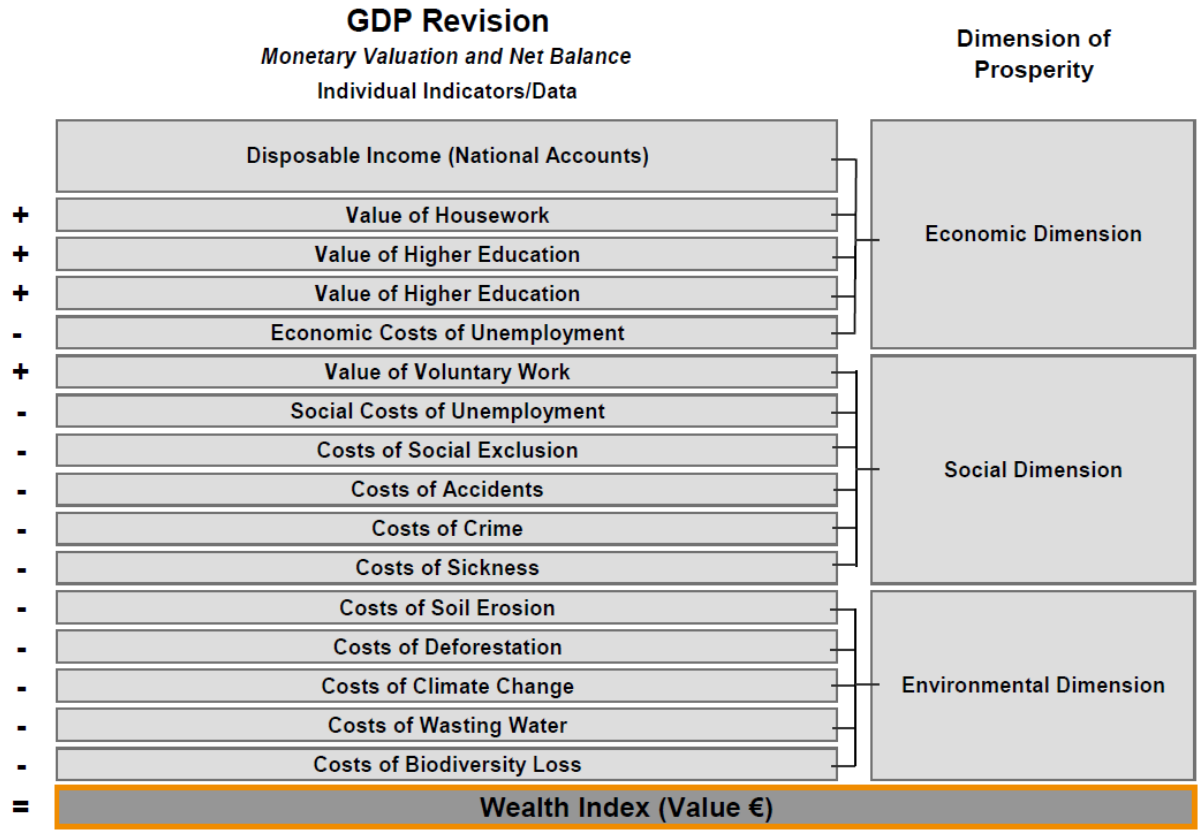
4. Measuring Prosperity: Options and Limits

In simple terms, there are currently two methodological models that can be used to measure and illustrate societal well-being in a better way than solely using GDP.

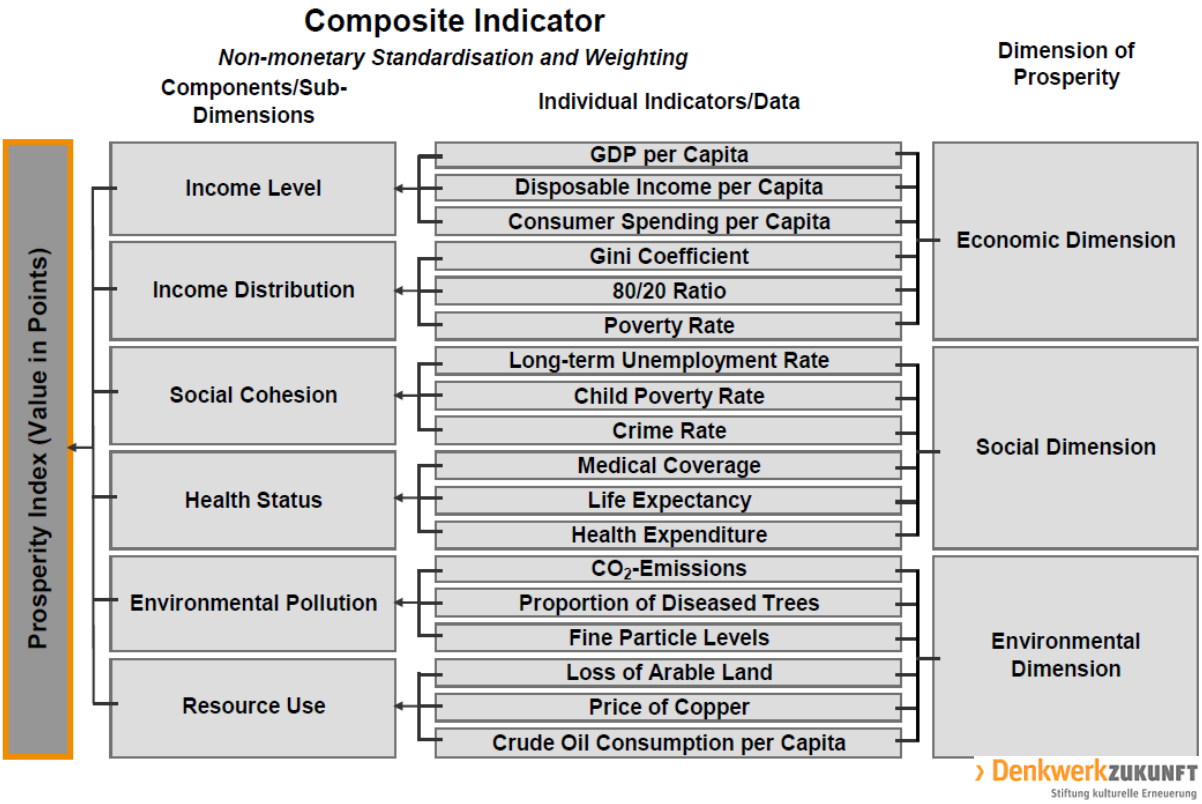
Integrated prosperity index

Integrated prosperity indices take in several dimensions of prosperity and display them in a single index. Prospertiy is thus shown with a single figure as is the case with GDP. Two different methods can be used. GDP revisions integrate the estimated costs of social and environmental damage and the value added by non-market-based activities into the (gross) domestic product calculation. By way of contrast, composite indicators involve a number of individual indicators which are collated into a non-monetary overall index which is usually shown using points.[15] Figure 1 shows the basic format of an integrated prosperity index.

Figure 1: Integrated Prosperity Indices



[15] For more on GDP revisions and composite indicators, see the definitions and examples in the glossary.



Source: Denkwerk Zukunft

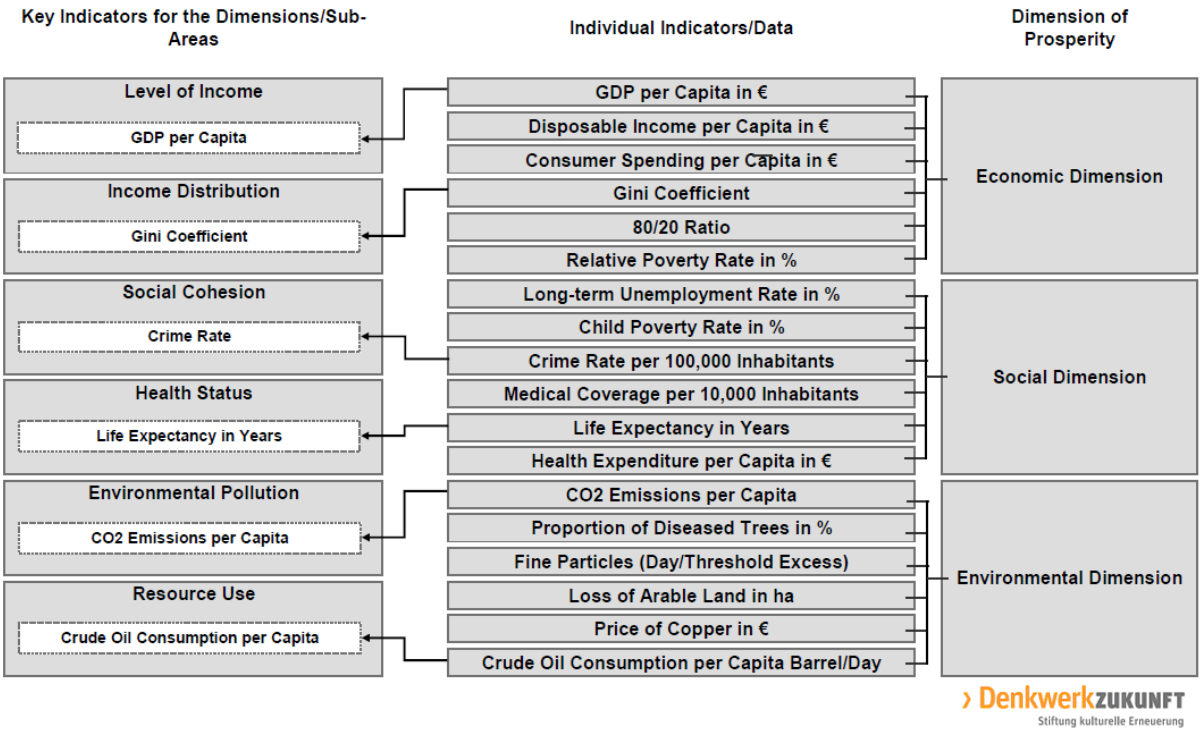
Key indicator set

Key indicators are individual indicators which may be used as being representative of specific dimensions and/or components of prosperity. For example, life expectancy is often used as a key indicator of the health of a society. In some cases, composite indicators serve as key indicators for components of prosperity. Thus, in the indicator-based report Nachhaltige Entwicklung in Deutschland[16] (Sustainable Development in Germany), the development of species diversity is measured by means of a biodiversity index.[17] In a key indicator set, the dimensions and components of prosperity are placed on an equal footing. The data is not, however, combined into an overall index. The principle of key indicator sets – often known as dashboards – is illustrated in Figure 2.

[16] See Statistische Bundesamt (2010b), p.16.

[17] The Stiglitz/Sen/Fitoussi Commission proposed collecting indicators for seven components of prosperity – health, education, personal activities/paid employment, political participation, social relations, individual environment conditions, and financial uncertainty/insecurity – and to use some of them to create subindices. In addition, to better reflect a society's economic wealth, the Commission believes that data on trends in available income, income distribution and household production should be collected on a regular basis and shown as a supplement to GDP, but without integrating them into GDP or collating them into a non-monetary index. See Stiglitz et al (2009) and Braakmann (2009), p. 783 ff.

Figure 2: Key Indicator Set Structure



Source: Denkwerk Zukunft

4.1 Strengths and weaknesses of existing models for integrated prosperity measurement

Until now, none of the available models has been able to fulfil all the requirements for measuring societal prosperity. Integrated prosperity indices like the National Wealth Index (NWI) (GDP review) and the Index of Social Progress (ISP) (non-monetary composite indicator) and key indicator sets like the Eurostat Monitoring Report on Sustainable Development in the European Union[18] all contain social and environmental dimensions of prosperity, providing a near-reality picture of societal prosperity. However, no consensus has been reached as to which and how many individual indicators should identify each of the specific dimensions. From a methodological standpoint, the models either result in a huge loss of information and/or are confusing. Plus, the availability of data is often unsatisfactory. Taken as a whole, this restricts the practical and strategic benefits for policymakers, industry and the general public. This may explain why none of the holistic indicators of prosperity mentioned has proven to be a reliable alternative or supplement to GDP.

[18] See Eurostat (2009).

Contested choice of individual indicators

A fundamental problem both with integrated prosperity indices and key indicator sets involves the choice of individual indicators designed to represent specific components of prosperity. No recognised method exists for this purpose. For example, to measure income distribution as a component of the economic dimension of wealth, objective indicators like the Gini coefficient and the income ratio between high and low earners can be used, as can subjective indicators such as people's responses to survey questions regarding their role in achieving material wealth. In most cases, the choice of individual indicators results from plausibility considerations, 'informed guess work',[19] and the sheer availability of data.

Frequent poor data availability

An added difficulty is that the quality of the available data is often too poor to allow realistic illustration of the components of prosperity. When compared with many sources of economic data, individual societal and environmental indicators are often used irregularly or are of lesser quality.[20] Although national statistics offices and other organisations are attempting to improve data collection and to standardise it internationally, methodological reviews often lead to gaps that make data comparability and interpretability difficult. Even if policymakers, industry and society manage to create the necessary conditions for better data availability, it would be years before adequate quality could be ensured.

4.2 Specific strengths and weakness of integrated prosperity indices

The strength of integrated prosperity indices lies primarily in the fact that they reduce complexity. By consolidating societal prosperity into a single index value, they aid historical and international comparison of prosperity levels. In addition, a single value is easier to communicate than a range of different figures. But this brings several substantive and methodological problems which restrict the benefits of integrated prosperity indices.

Loss of information and reliability through data integration

If the economic, social and environmental dimensions of prosperity are consolidated into an individual index, it makes it difficult to see which of the components and individual indicators determine changes in the index. Thus, an improvement in the

[19] Noll (2002), p.20.

[20] See Constanza et al. (2009), p. 24ff. The unpaid work performed by people in Germany, which provides the basis for calculating the value of housework and voluntary work, was last surveyed in 2001 and prior to that in 1992. See Schäfer (2004).

individual indicators for social, environmental and economic prosperity can cause an index to rise. The index can also rise if, for example, the increase in economic indicators overcompensates for the drop in environmental and/or social values. To recognise where policy action is needed and which measures are to be taken, integrated prosperity indices must be broken back down into their dimensions, these into their components and these in turn down to their individual indicators.

Inaccurate monetary estimating methods

As part of GDP revisions, the individual indicators measured as non-monetary values must be translated into monetary units. Depending on how it is estimated, the value of a single component of wealth can vary considerably. In 2001, the value of unpaid housework and voluntary work in Germany lay between €600 billion and €2.3 trillion[21] depending on the methodology used in the calculation. The first figure would mean revising GDP upwards by just under 30 percent, the second by some 110 percent. Even more complex is the monetary value of the costs of resource use and environmental damage. This could be the reason why it has so far not been possible to integrate these into GDP in the form of an extended enviro-economic calculation.[22]

Problematic weighting format

With composite indicators, the components and the individual indicators must be adequately weighted according to their importance to wealth. Depending on whether the economic dimension has a weighting of 10, 25 or 50 percent in the overall index, it can change the level of prosperity and its development significantly. Weighting methods, of which none are generally recognised, include plausibility considerations, expert ratings, surveys and factor scores from factor analyses.[23]

Information loss due to standardisation

In addition, the raw data measured in using different units such as kilogram, euro and percentage must be translated into a standardised unit of measure. But with each phase of standardisation information is lost.[24] Also, for many people, the non-

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[21] See Schäfer, p.969.

[22] Several projects are currently underway which translate the physical data for the enviro-economic calculation into monetary units. Among other things, according to estimates by the European Commission (2009, p. 10), there is a considerable need for further research in this field.

[23] See Noll (2002), p.7f.

[24] Options for standardisation: Minimum and maximum value standardisation and Z transformation. Put simply, in Z transformation, the mean of an indicator is set to zero and the standard deviation to one. In a normal distribution, about two-thirds of values are within the mean +/- the standard deviation. This permits comparison between and combined arithmetical operations with differing scales (see Sachs 1992, p.111). If, for example, we were to calculate the average GDP per inhabitant and their life expectancy without an appropriate Z transformation, life expectancy would have only minimum influence on the result.

monetary indices usually illustrated in the form of points are no more understandable and interpretable than monetary values.

4.3 Specific strengths and weaknesses of key indicator sets

When compared with integrated prosperity indices, key indicator sets supply a more nuanced picture of societal prosperity. For the individual prosperity components, level and development can be measured separately using one or more indicators. A loss of information and meaning due to consolidation, monetary valuation, weighting and/or transformation of data is avoided. As a result, it is easier to identify in which area of society action is needed and where policy measures will have the desired effects.

Confusion when using a large number of key indicators

However, as the number of key indicators grows, so does complexity and confusion. With a set of 10 or 20 key indicators, the level of prosperity in a society can neither be identified in its entirety nor historically and/or reliably compared internationally.

Limited representativeness with a low number of key indicators

If, however, individual components of prosperity are only broadly defined and only illustrated using a single key indicator, the risk increases that the chosen indicator is not representative. For instance, in the Eurostat Monitoring Report, demographic change is presented via the number of older people in employment. Whether this key indicator adequately illustrates the diversity of demographic change is questionable.

5. The Prosperity Quintet of the Denkwerk Zukunft

To avoid both the lack of verifiability with integrated prosperity indices and the confusion that occurs with many key indicator sets while still presenting the most accurate picture of prosperity, Denkwerk Zukunft proposes measuring a country's prosperity on the basis of five selected indicators. The Prosperity Quintet:

- Is multidimensional because alongside economic, social and environmental dimensions, it also takes in temporal and spatial dimensions of prosperity.
- Contains objective data on the quality of life and subjective assessments of well-being.
- Considers both social and personal perceptions.

5.1 Composition of the Prosperity Quintet

In the manner of a key indicator set, the Prosperity Quintet (see Fig. 3) comprises five equally weighted indicators:

- GDP per capita
- Distribution of disposable income based on the 80/20 ratio
- Social exclusion rate
- Ecological footprint in relation to global biocapacity (per capita in both cases)
- Public debt rate.

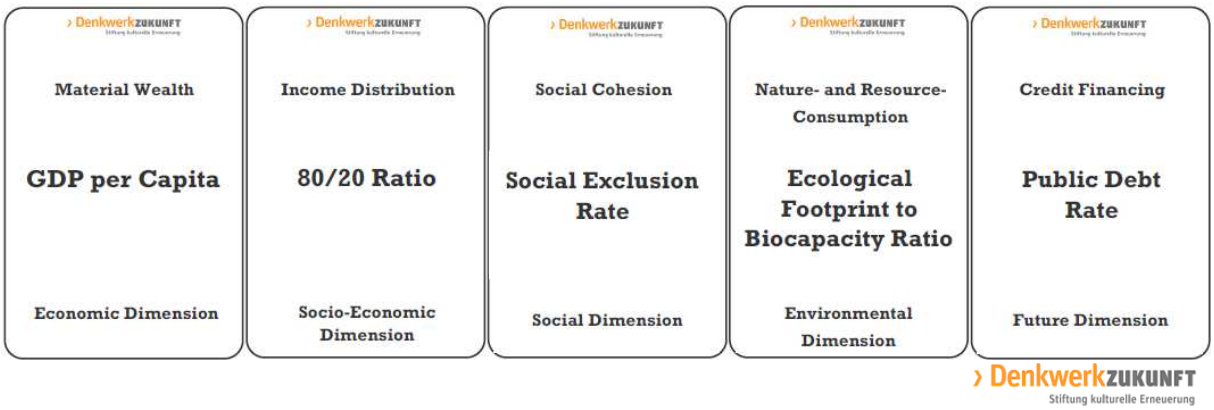
GDP per capita

Even though GDP is only one component of economic activity[25] and rarely illustrates the economy's negative impact on resources, the environment, people and society,[26] it is nonetheless a good measure of a country's economic activity and provision of goods and services to its citizens. This is one reason why many institutions include GDP per capita[27] in their key indicator sets to measure material wealth.[28] Another reason could be that GDP is easily quantifiable and internationally recognised. Plus, GDP data is regularly and readily available.[29] But these strengths do not detract from

[25] See Section 2.
[26] See Section 2.
[27] The per capita reference is chosen for historical and international comparability.
[28] The Eurostat Monitoring Report, for example. See glossary.
[29] See Section 2.

the need to remedy GDP's inherent weaknesses: it must be made more reliable and there is a way to do it.[30]

Figure 3: The Denkwerk Zukunft Prosperity Quintet
(Schematic illustration)



Source: Denkwerk Zukunft

80/20 Ratio

To judge whether the material wealth achieved in a given country serves the good of many or just a few, the income of various income groups can be compared – for example that of the upper fifth with that of the lower fifth. It is also possible to compare the upper tenth with the lower tenth and the upper half with the lower half. The deciding factor in each case is that if the disposable income of the financially better off group grows faster than that of the less well off, the income inequality gap widens.

What speaks in favour of using a distribution indicator when measuring a country's prosperity is that income distribution has a considerable impact on a society's happiness and well-being. As studies have shown, personal happiness increases with greater income equality, especially for people in Continental Europe.[31] By way of contrast, there are close correlations between societal deficits and considerable income inequality. More recent studies say that income distribution is just as

[30] A prerequisite here is that natural and environmental goods usually have a price. However, there are rarely markets for these goods and thus no prevailing market prices. But even if market prices were available, they would not necessarily reflect the importance of these goods in future wealth. See Stiglitz/Sen/Fitoussi (2009), p. 226 and Diefenbacher/Zieschank (2010), p. 73 f.

[31] An empirical study commission by the Ernst Freiberger Stiftung (2010, p.21) shows that feeling that one's own income is just compared to that of others has a positive impact on subjective happiness. What people perceive as just also depends on their cultural background. For example, when compared to Anglo-Saxon societies, (continental) Europeans prefer more equal distribution of income and assets. See Alesina/Di Tella/MacCulloch (2004).

important for a prosperous, functioning society as the average degree of wealth. Countries with high GDP per capita but greater income inequality tend in many areas of society to demonstrate bigger deficits than countries with low material wealth on average[32] but no strong differences in income.[33] In countries with high income inequality, not only are depression, drug abuse, obesity and violence more widespread, their populations also have poorer reading and writing skills and less trust in other people. There is, however, no optimal rule of measure for what constitutes equality and inequality. Marginal income inequality or even equality can have serious consequences. As communism's planned economy model shows, productive incentives are lost which in turn impacts on innovation and productivity, both economic and societal.

Denkwerk Zukunft favours the 80/20 ratio as a prosperity indicator because it is already well established as a reference and is easily available. Eurostat uses it in its analysis of income inequality and prefers it to the Gini coefficient.[34] However, the 80/20 ratios put forward by the EU in the EU SILC survey show an 80/20 relationship in need of improvement in methodological terms. This applies especially to sample selection and extrapolation.[35] Given the increasing importance the EU places on income distribution,[36] these problems should be remedied relatively quickly.

The basis for calculating the 80/20 ratio is the equivalised disposable net household income. This includes only those income components which private households actually have available for consumption and savings.[37] It also takes in differing needs of adults and children, and of single and family households. What are not included or not sufficiently included are state-provided services like medical treatment paid for by health insurance funds and tax revenue-funded amenities like nursery schools and swimming pools. Because these are likely to increase rather than decrease in the future,[38] it makes sense for these wealth-increasing indirect payments to receive greater consideration.

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32 See Wilkinson/Pickett (2009).
33 See ibid.
34 For a definition of the Gini coefficient see the glossary.
35 See Frick/Krell (2009).
36 Reporting on distribution and inequality plays an increasingly important role at the European Commission (2009, p.7) because even with rising per capita GDP, the number of people at risk of poverty can increase and social and economic cohesion can also depend on whether disadvantages and advantages are equally distributed across economic and social groups.
37 See the glossary for more on how equivalence-weighted and needs-weighted household net incomes are calculated according to the OECD standard.
38 The German government, in agreement with the opposition, is working to expand childcare services and full-day schooling. Low-income groups are given grants for school meals and for participation in extra curricular tuition, sport and music lessons.

Social exclusion rate

The social exclusion rate shows the portion of a population that perceives itself to be excluded from society.[39] While it is only one of many components of societal prosperity,[40] it is especially important for people's well-being. Those who are not well integrated into society are significantly less satisfied with their lives.[41] The more people feel excluded, the less stable society becomes and the greater the risk of social conflict.

The social exclusion rate is also selected because it is based on a representative survey and thus on subjective assessments. These supply key information on perceived well-being and quality of life, because people are best able to assess their own living conditions.[42] However, psychological and cultural traits also come to light which are often difficult to verify or evaluate.[43]

Also, the social exclusion rate has the advantage that apart from material inequalities, it also illustrates interpersonal, societal and institutional disparities and is thus multidimensional. Material poverty or high income inequality as expressed in the 80/20 ratio can be a cause of social exclusion. But it can often be due to a lack of personal relationships, belonging to a social minority, failure to find a job, health problems and poor education.[44] This means that in some circumstances, the social exclusion rate can shed light on whether and, where applicable, to what extent losses in material wealth can be compensated for by interpersonal relationships, integration into the jobs market and into society, and better health.[45]

The social exclusion rate is surveyed using the Eurobarometer for the EU27 member states. Up to now, the data has only been available since 2001 and only at irregular intervals.[46] This could change, however, because as part of a feasibility study, the Eurostat social exclusion rate was proposed as a suitable indicator of societal well-being and especially of social capital. [47]

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39 For the definition of the social exclusion rate see the glossary.
40 See Section 3.
41 See Fóti (2010), p. 8f. and Noll/Weick (2019), Table 2.
42 See Stiglitz/Sen/Fitoussi (2009), p. 42.
43 See Pirani/Schifini (2010), p. 8.
44 The chance of feeling excluded from society among members of ethnic, religious and cultural minorities is three to four times greater than the rest of the population. See Pirani/Schifini (2010). pp. 5 and 7.
45 See ibid., p. 2.
46 This also applies for data from other representative surveys like the European Social Survey, the European Value Study and the Germany-focused socio-economic panel. See glossary.
47 See Eurostat (2010).

Ecological footprint in relation to global biocapacity

Among other things, the ecological footprint measures the area of forest, arable land and housing development a society needs for the production of the goods and services it consumes and for the absorption of the emissions generated in supplying those commodities.[48] It also takes in the area of land needed when resources and products are imported from other parts of the world. The area of land identified is placed in relation to the renewable biocapacity generated by the ecosystem within a given year and which is generally available to someone living on Earth.[49] If the ecological footprint exceeds the renewable biocapacity, the stock of natural capital shrinks. According to calculations by the Global Footprint Network, each person on earth can currently use 1.8 global hectares (gha)[50] of the earth's surface without damaging nature or the environment. Actual global hectare use lies at around 2.7 gha, far exceeding the recommended threshold.

The ecological footprint is currently the only complex resource indicator for which data is available to allow global comparison over time. One of its main advantages is that it makes immediately recognisable the extent to which production and consumption of goods and services exceed environmental thresholds. Thus, when measuring wealth, it is a key supplement to GDP. Alternative environmental indicators like annual greenhouse gas emissions and loss of biodiversity do not offer these options or do so only to a limited extent. For example, a decline in greenhouse gas emissions gives the impression that society is on the right path although those emissions are still too high to halt global warming at a bearable level or prevent other types of environmental damage.

The benefits of the ecological footprint do, however, come up against methodological disadvantages. Many impacts of consumption, say on water, are excluded.[51] And only renewable resources are listed. Non-renewables are only partially included and then only indirectly via emissions. In addition, the calculation methodologies and the preparation and monitoring of the comprehensive international datasets leaves room for improvement. The ecological footprint features all the known problems of a

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48 For a definition of the ecological footprint see the glossary.

49 As an alternative, the ecological footprint in relation to the available biocapacity of a country may be used. But with this variant, less populated countries like Canada and Sweden do well by sheer default due to their vast natural spaces, although in some cases they have high levels of environmental use. With an ecological footprint of 5.7 gha per inhabitant, people in Sweden use only 60 percent of the biocapacity available per capita in their country, but 3.2 times of the global biocapacity available per capita.

50 gha stands for global hectare. For a more detailed definition see 'ecological footprint' in the glossary.

51 See European Commission (2009a), p. 5.

composite indicator[52] because it uses a range of calculation factors to combine several environmental categories like the use of renewable raw materials, energy and land use, and CO_2 emissions into a single index. Also, because of the delayed availability of data, the footprint is only available three years after the fact. The most current data is for 2008. Nonetheless, the ecological footprint is likely to gain in importance because of its clear form of presentation.

Public debt rate

The public debt rate expresses the total amount of general government gross debt in a given country in relation to GDP. It shows to what extent material wealth has been bought 'on tick' and thus at the expense of the future. The debt rate is thus a measurement of a country's sustainability. With growing levels of debt, an ever greater share of public funds must be used to pay off loans. These funds are no longer available for activities such as investment and the provision of social services. This not only restricts the scope for policymaking, say in responding to and combating unforeseeable crises, it also impairs the basis for building future material wealth. This is especially the case if public debt needed to be curbed. With the exception of the owners of state bonds, while the debt was being drawn down, people would experience no growth in material wealth despite rising GDP – they could even see a loss. It is not without reason that in countries with high debt rates, there is often an incentive to keep interest rates low and to boost incomes by expanding the money supply. The outcome is inflation.

Apart from the ability to assess a country's resilience to future crises, using the debt rate makes sense because it makes for an easy to understand and widely used indicator. Like GDP, the data is current and available globally.

It remains a point of contention, however, as to when public debt, meaning what amount, has a negative impact on the development of GDP and on a country's sustainability. While a low level increase in debt, say to finance future investment in research or education, is generally seen as having a positive effect on economic development,[53] a high long-term debt rate is always seen as negative because it amplifies economic swings,[54] increases both the economy's and the state's

[52] See Section 4.1 and 4.2.
[53] See Cecchetti et al. (2011), p. 5.
[54] Growing debt increases a country's vulnerability to external shocks which result in rising interest rates and loss of earnings due to a drop in economic growth. A country deep in debt with only marginal growth or a shrinking economy can quickly see its credit ratings downgraded by the financial markets. This in turn means that the state is only able to borrow smaller amounts of money and must cut its expenditure. Consumption and investment drop back. The consequences are even less economic growth and more frequent high unemployment rates. See ibid., p 4.

vulnerability to crisis, and slows down economic progress.[55] Empirical studies in early industrialised countries show that this point is reached with a debt rate of 85 percent. Because governments have to allow room for unpredictable events when planning, the debt rate should lie significantly below 85 percent.[56] When introducing the European Monetary Union, the European Commission set the debt ceiling at 60 percent of GDP. This threshold fits with the annual deficit rate of 3 percent of GDP for model considerations on the interrelationships between economic growth, the deficit rate, interest rates and debt rates. Critics believe this ceiling is too high. Because the deficit rate of 3 percent of GDP allows for new debt to be taken on independent of the economic situation, its tipping over into recession times is programmed, putting long-term maintenance of the 60 percent ceiling at risk.[57]

Also, the debt rate gives no indication of the quality of the debt. While domestic debt leads to a redistribution of wealth within the local population, foreign debt makes the borrowing state dependent on other states. This can have a negative impact on its refinancing options. In addition, it must also be taken into account that explicit public debt is usually only part of a country's total public debt. To assess the full extent of public loans, the implicit debt – meaning future state loans like social security insurance and pension schemes financed on a pay-as-you-go basis[58] – must also be considered. Because their calculation depends on a variety of assumptions,[59] only the explicit public debt rate is used as an indicator of prosperity. What is also omitted is debt entered into by companies outside the finance sector and by private households. If these are also taken into account, the debt rate increases significantly.[60]

5.2 Strengths and weaknesses of the Prosperity Quintet

The indicators used in the Prosperity Quintet are scientifically founded, tested and recognised by experts in the field. International and historical data is also available for use with them. But most importantly, being restricted to just five key indicators, the Prosperity Quintet is self-explanatory, clearly structured and easy to communicate.

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55 See ibid., p. 4ft.
56 See ibid., p. 22.
57 See Scheif (1996), p. 18 f.
58 For example, Germany's implicit debt stands at 220 and that of the EU at 211 percent of GDP. Together with explicit debt, the total debt for Germany and the EU is 300 percent. See Hishow (2010). In the US implicit and explicit debt make for a combined total of over 600 percent. See Bräuninger et al. (2009).
59 For example, the number of payment flows to be considered and the future interest structure.
60 See Cecchetti et al. (2011), p. 24 f.

A nuanced picture of prosperity

Consideration of the economic, social and environmental dimensions of prosperity gives a nuanced picture. Thus, the Prosperity Quintet makes it instantly clear that an increase in material goods and services does not necessarily equate to greater prosperity if it is achieved at the expense of natural resources and the environment or of future generations and/or if more and more people feel they are excluded from society. By contrast, a drop in GDP does not necessarily mean a loss of prosperity if at the same time the income gap is narrowed, more people are integrated into society and/or the impact on natural resources and the environment is lessened.

Because the Prosperity Quintet also includes temporal and spatial dimensions, it allows conclusions to be drawn on whether the current degree of prosperity can be maintained for future generations. Although it comprises only five prosperity indicators, it reflects objective, subjective, societal and personal perceptions of prosperity.

Influenceable by society and policymakers

In contrast to personal satisfaction which has long been somewhat static[61] in early industrialised countries like Germany, the prosperity indicators chosen by Denkwerk Zukunft change considerably over time. This means they are influenced by society and policymakers. In addition, the indicators in the Prosperity Quintet (as shown in Fig. 1) are also used by key institutions like the European Commission. This is likely to have a positive effect on the level of awareness to them, and especially to the 80/20 ratio and the social exclusion rate. Finally, each user can interpret the outcome of the Prosperity Quintet according to their personal perception of prosperity. This is not possible using an integrated prosperity index.

Interpretational challenges

The Prosperity Quintet does have a downside, however. The nuanced picture derived from the five key indicators limits the extent to which countries and regions can be compared with one another. Nonetheless, no attempt is made to combine the five prosperity indicators into a single index. This is because key data is lost when standardising and weighting the separate indicators.[62] In addition, society and policymakers, having focused for many years on a single material wealth indicator (GDP), must develop an awareness to the importance and development of non-

[61] The proportion of people who are satisfied with their lives has stagnated in Germany since the end of the 1960s at around 60 percent. See Allensbach (2010).

[62] See Section 4.1 and 4.2.

material wealth indicators like the 80/20 ratio, the social exclusion rate and the ecological footprint. This would, however, be made difficult if GDP were to be replaced with a single prosperity index.

As a set of five key indicators, the Prosperity Quintet has the usual disadvantages inherent of such models.[63] These are mainly the limited representativeness of the selected indicators, particularly in measuring societal prosperity. Another downside is that apart from GDP and public debt, the indicators are currently only available after the fact. For the 80/20 ratio and the social exclusion rate, data is only available for the EU. This means that the Prosperity Quintet cannot be depicted for the US, Japan, India and China.

Table 1: Institutions Using the Prosperity Quintet Indicators

Prosperity Quintet Indicators	Institutions
GDP per Capita Source: Eurostat (2011)	European Commission (Eurostat) (2011): Indicators for Sustainable Development Statistisches Bundesamt (Federal Statistical Office) (2011): Indikatoren zur Nachhaltigen Entwicklung in Deutschland (Indicators for Sustainable Development in Germany) Bertelsmann Stiftung (2011): Sustainable Governance Indicators Gesis (2011): Social Indicators Monitor (SIMon) (in PPP)
80/20 Ratio Source: Eurostat (2011)	European Commission (Eurostat) (2011): Indicators for Sustainable Development Gesis (2011): Social Indicators Monitor (SIMon)
Social Exclusion Rate Source: Gesis (2011) and European Commission (2010)	European Commission (Eurostat)(2010): Feasibility Study for Well-Being Indicators* Gesis (2011): Social Indicators Monitor (SIMon)
Ecological Footprint Source: Global Footprint Network (2011)	New Economics Foundation (2010): Happy Planet Index Center for Societal Progress (2011): Fortschrittsindex CASSE (2010): Enough is Enough. Ideas for a Sustainable Economy in a World of Finite Resources
Public Debt Rate Source: Eurostat (2011)	European Commission (Eurostat) (2011): Indicators for Sustainable Development

* Proposal.

Source: Denkwerk Zukunft

[63] See Section 4.3.

6. Prosperity in Germany and Other EU Countries Measured with the Prosperity Quintet

If prosperity in Germany and in other EU countries is measured not just by GDP but by the Prosperity Quintet indicators, the picture changes dramatically. The level of GDP that indicates a great amount of wealth is put into perspective once the ecological footprint and the public debt rate are added to the equation.

This also applies to historical comparison. While material wealth has increased in Germany and in the rest of the EU since the beginning of this decade, there has been a downward trend in social and environmental prosperity. The increase in material wealth went hand in hand with greater exploitation of nature, the environment and the future. Although the Prosperity Quintet refrains from drawing up a net balance across the individual indicators, it is clear that Europe prospers significantly less.

What constitutes a prosperous country?

According to the Denkwerk Zukunft Prosperity Quintet, a country and its people are prosperous when:

- GDP per capita is high
- No wide income gap exists between the income of the richest fifth and poorest fifth of the population
- The number of people excluded from society is small
- The ecological footprint does not exceed global biocapacity
- The public debt rate is low.

This indicates that the ecological footprint, which in some cases far exceeds the Earth's biocapacity, is the Achilles heel of all early industrialised countries and of a growing number of emerging economies.[64] If the European Union together with Norway and Switzerland still belong to the most prosperous regions of the world, then it is primarily due to their extremely high GDP when compared with other countries and to their socio-economic and social prosperity.

[64] For example, in the BRIC countries, only India with 0.9 gha per capita has a smaller footprint than the available global per capita biocapacity of 1.8 gha. China has an ecological footprint of 2.1 gha, Brazil 2.9 gha and Russia 4.4 gha – all significantly bigger. See Global Footprint Network (2011).

When does an EU country enjoy above-average prosperity?

To measure prosperity in Germany and in other EU countries using the Prosperity Quintet, an EU average is needed. Thus, EU member states enjoy above-average prosperity when:

- GDP per capita exceeds €23,000
- The income of the top fifth among the population is not more than five times that of the lowest fifth
- The social exclusion rate is less than 16 percent
- Their ecological footprint does not exceed more than 2.7 times global biocapacity per capita[65]
- The public debt rate is not higher than 80 percent.

6.1 The Prosperity Quintet in Germany and other EU countries

In an EU comparison, Germany's prosperity is above-average. This is especially the case when compared with land-rich and densely populated EU countries. Germany's prosperity did, however, drop slightly in the first decade of this century. Although this was also the case in other land-rich and densely populated EU countries in Western Europe, Germany's position deteriorated when measuring prosperity across the EU. The prime reasons are the significant increase in its income inequality and its debt rate and, albeit to a lesser extent, the increase in the size of its ecological footprint.

GDP per capita in Germany above average

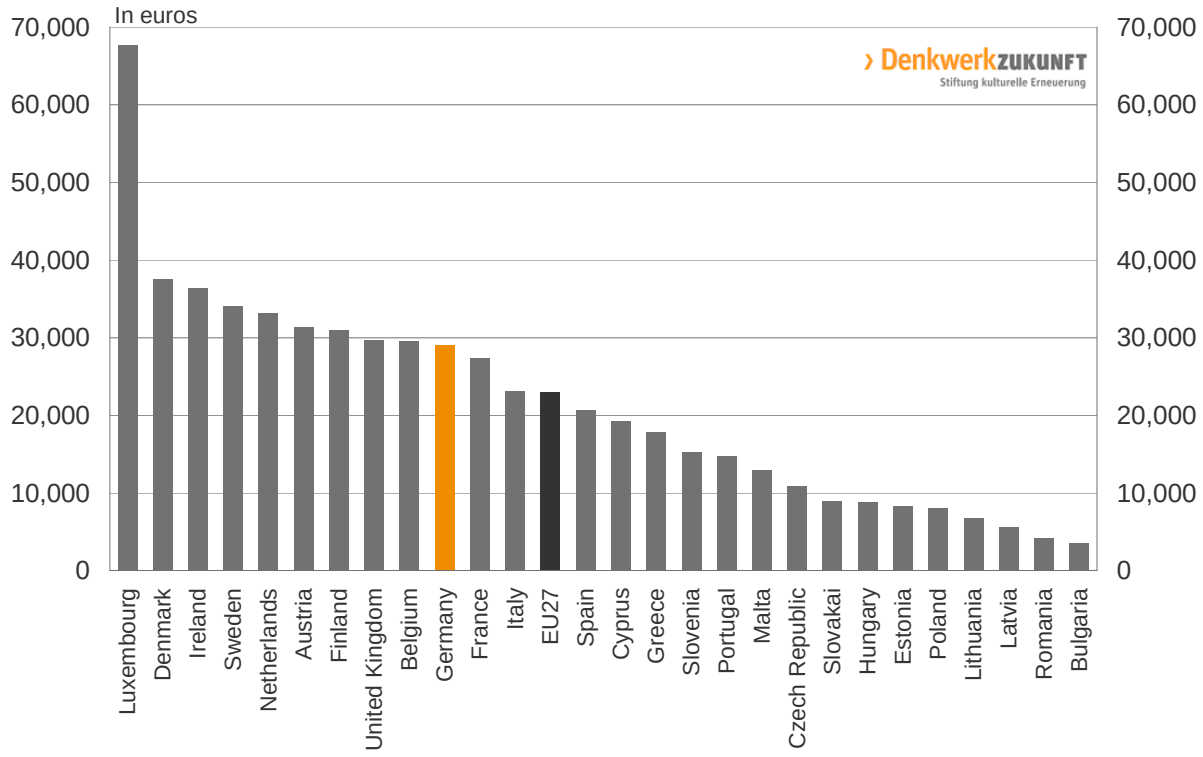
In 2010, Germany produced goods and services with a per capita value of €29,000. This is 26 percent more than the average for all EU27 member states. As shown in Fig. 4 below, this places Germany at the bottom end of the wealthiest third of EU countries. Among the land-rich and densely populated countries of Europe, it is only exceeded by the United Kingdom which, with a per capita GDP of €29,700, lies in eighth place in the list of the EU countries with the greatest material wealth. The material wealth hierarchy (see Fig. 4) is led by Luxembourg,[66] Denmark and Ireland.

[65] If everyone in the world were to work and live like the people in EU countries, they would consume almost three times the natural resources that the Earth is able to supply. This is still significantly less than for example people in the US, whose ecological footprint is 4.1 in relation to global biocapacity. Nonetheless, it makes clear the extent to which Europe's material wealth is paid for by a loss of wealth in environmental terms.

[66] The above-average per capita GDP in Luxembourg stems among other things from its role as a finance centre and the fact that is has the largest number of commuters from neighbouring countries. The actual material wealth enjoyed by the people of Luxembourg is likely to be significantly less.

In 2010, Ireland's per capita GDP was one quarter higher than Germany's. The lowest per capita GDP is seen in Eastern European countries.

Figure 4: GDP per Capita in the EU 2010



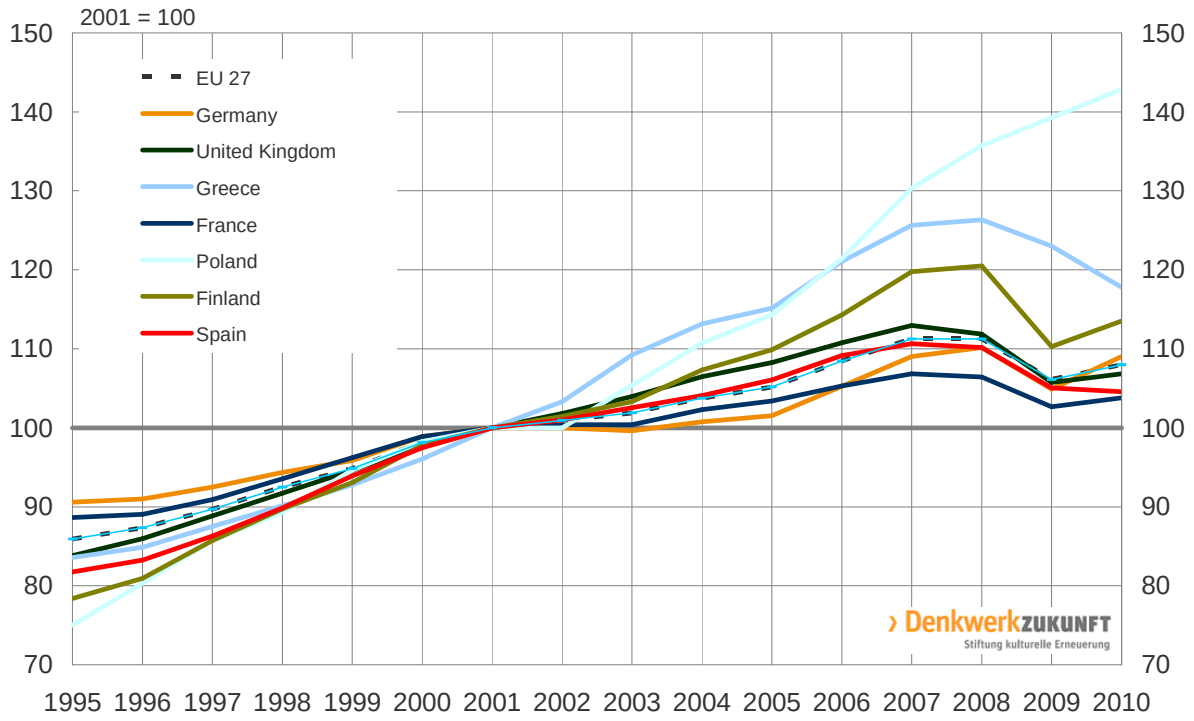
Source: Eurostat (2011)

With annual growth of around one percent, the German economy has grown in pace with the EU's average economy since 2001. As shown in Fig. 5, greater growth can be seen in EU member states in Eastern Europe in particular,[67] but also in Finland and Greece.[68] France and Spain lag significantly behind Germany, with annual growth of 0.4 and 0.5 percent respectively.

[67] For example, per capita GDP in Poland grew at around 0.4 percent, in the Czech Republic at 2.9 percent and in Slovenia at 2.4 percent.

[68] Greece's per capita GDP rose by annual 1.8 percent. However, this rise is largely the result of a non-sustainable debt policy and optimistic accounting.

Figure 5: GDP per Capita in Selected EU Countries 1995-2010



Source: Eurostat (2011)

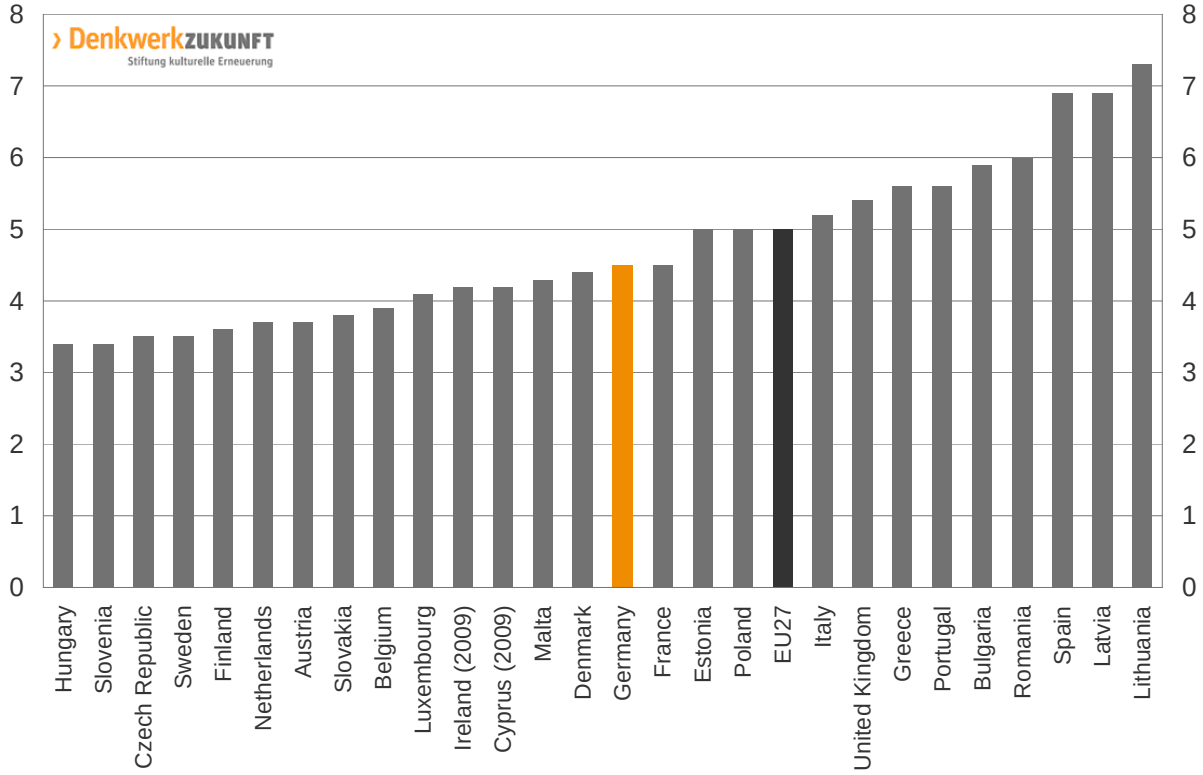
Measurable increase in 80/20 ratio in Germany

Measured in absolute terms, in 2010 the income gap in Germany was narrower than the EU average (see Fig. 6). The highest-earning upper fifth had a disposable income some 4.5 times higher than that of the lower fifth comprising the least well off. The European average was 5.0. Of the land-rich and densely populated countries in Western Europe, only France achieved a similarly good result. In Italy, the United Kingdom and Spain, the income gap was 5.2, 5.4 and 6.9 respectively – considerably wider in some cases than in Germany. Markedly lower income differences were seen in countries like Hungary, Slovenia, the Czech Republic and Slovakia, where the levelling out of incomes under communism's planned economy model still has an effect.[69] In Sweden, Finland, the Netherlands and Austria, the income gap was

[69] However, among the countries of former communistic planned economies, there are some with greater income inequality such as the Baltic countries, Romania and Bulgaria. Causes include the lack of industrialisation, weak employee organisations, a comparatively abrupt and radical liberalisation of public monopolies, too great a concentration of property ownership among small elitist groups following privatisation measures, and poorly structured social security systems. In Bulgaria and Romania, corruption and minority group issues add to the problem. Romania also still has a great many people employed in farming. Plus, regional disparities in incomes are greater on the whole.

narrower than in Germany. In these countries, the incomes of the upper fifth did not exceed more than 3.8 times the incomes of the lowest fifth.

Figure 6: 80/20 Ratio in the EU 2010



Source: Eurostat (2011)

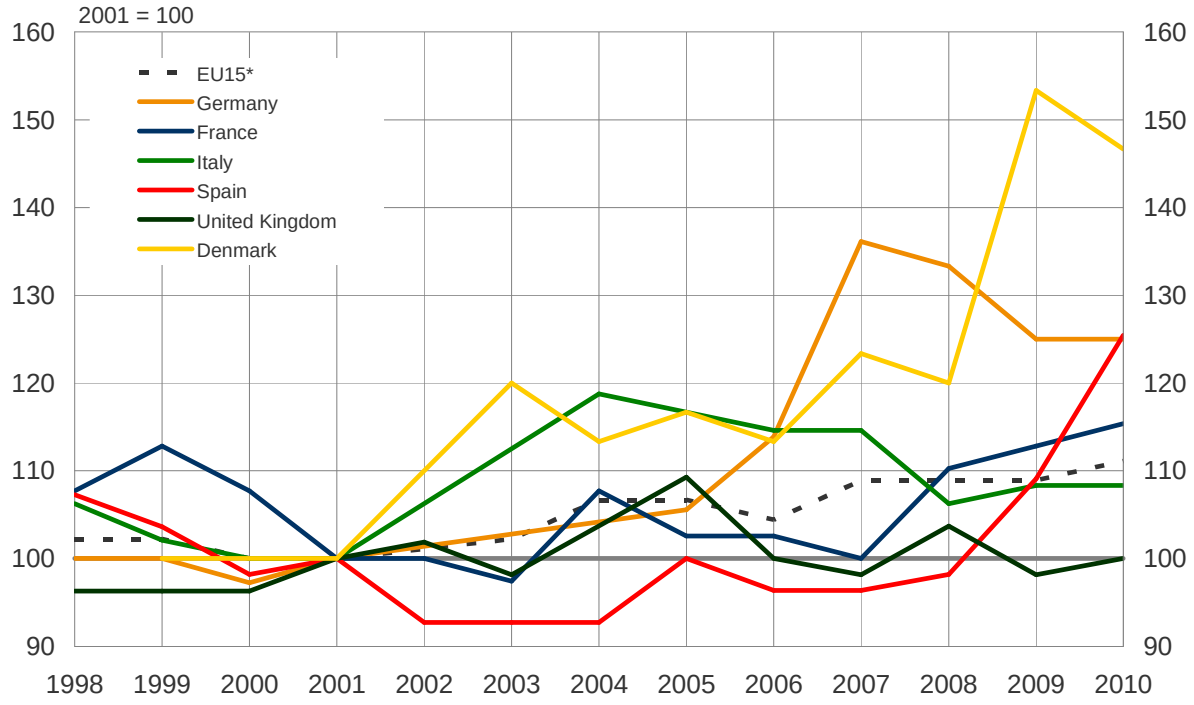
A similar gap was seen in Germany up to about ten years ago. Since then, the gap between the incomes of the richest fifth and the poorest fifth of the population rose by 25 percent.[70] As shown in Fig. 7, it also rose in other Western European countries, particularly in France, and especially in Eastern European countries.[71] Still, second only to Denmark (+46 percent), Germany and Spain (+25 percent) had the second-biggest rise of all the Western European countries. Among other things, this results from the above-average increase in the low-wage sector (at 20.2 percent, Germany

[70] However, the rise in Germany is likely to result from a methodological review of the EU SILC survey. Thus, according to data from the Socio-Economic Panel (SOEP), the 80/20 ratio rises by a mere 20 percent in the reporting period. See DIW (2011). Also, in a comparison of Western European EU countries (EU15), this figure is only exceeded by Denmark.

[71] The opening of the markets in the former communist planned economies led to a greater income gap. While the increase in income inequality in Central European countries was comparatively moderate, the income gap in the Baltic and Southern European countries became far wider. See Footnote 69.

now has one of the biggest low-wage sectors in Europe),[72] above-average income increases in specific occupational groups, and growing income derived from capital gains.

Figure 7: Trends in the 80/20 Ratio in Selected EU Countries 1998-2010



** For the EU27, data is only available from 2005 onwards. The EU comparison is thus based on data for the EU15.*

Source: Eurostat (2011)

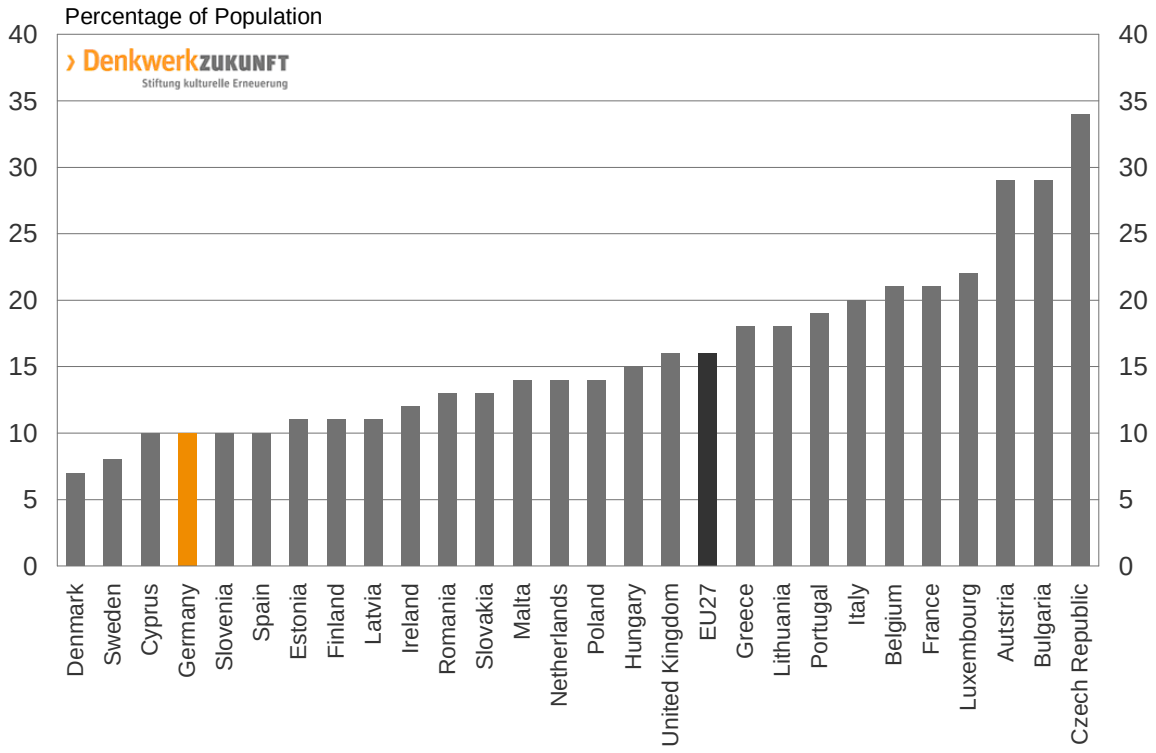
Social exclusion rate in Germany remains below average

In 2010, 10 percent of the population felt they were excluded from society. As shown in Fig. 8, this was significantly lower than the EU average of 16 percent. With Denmark and Sweden at seven and eight percent respectively, this placed Germany in third lowest place in the social exclusion stakes along with Cyprus, Slovenia and Spain. In other land-rich and densely populated countries, the rate was significantly higher. With 20 and 21 percent respectively, Italy and France have a social exclusion

[72] In 2009, 20.2 percent of full-time employees in Germany earned less than two-thirds of the average income. In 2000, it was only 17 percent. This put Germany in mid-field among the EU countries. Today, it heads the field with the United Kingdom (20.6 percent), Ireland (20.2 percent), Poland (21.1 percent) and Hungary (21.8 percent). The low-wage sectors are significantly smaller in Austria (16.0 percent), Denmark (13.6 percent), Finland (8.5 percent) and Belgium (4.0 percent). See OECD (2011).

rate that is twice as high as Germany's.[73] The highest rates are seen in Luxembourg and Austria, and in Bulgaria and the Czech Republic, where almost a third of their populations felt excluded from society.

Figure 8: Social Exclusion Rate in the EU 2010



Source: EU Commission (2010)

From 2001 to 2009[74] the social exclusion rate in Germany rose by 9 percent (see Fig. 9) and thus disproportionately slowly relative to the EU average. The significant increase in the 80/20 ratio could have led to assumptions that the exclusion rate had risen at an above average pace. That this was not in fact the case could perhaps be explained by the improved integration of low-skilled workers into the jobs market.[75] In

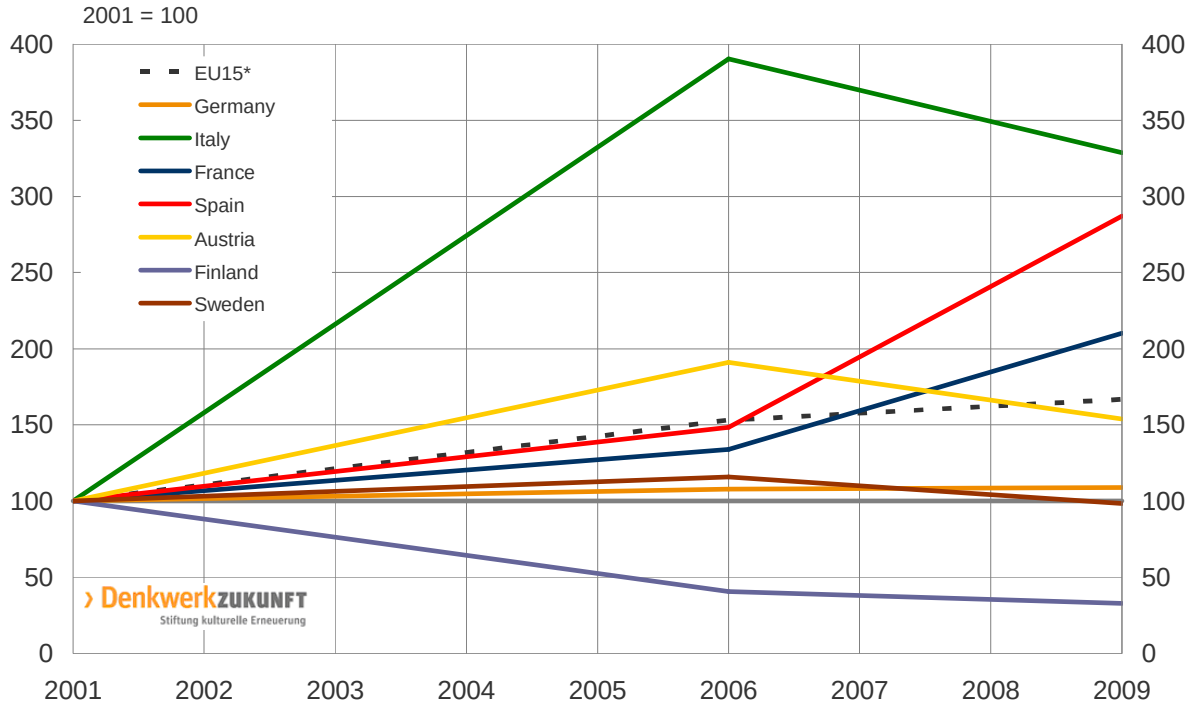
[73] The high social exclusion rate in France is likely to result from the high proportion of people with immigrant backgrounds. However, due to a lack of data, it is not possible to state the exact number of people with immigrant backgrounds (as defined in Germany). See Sievert/Klingholz (2009), p. 7. According to Pirani and Schifini (2010, p. 7), the high exclusion rate in Italy can only be partially explained using objective influencing factors derived via statistics. While the socio-economic data suggests an above-average social exclusion rate, it cannot explain the extent of the deviation. Further research is needed in this area.

[74] Given the change in survey questioning since 2009, time series comparisons can only be made for the period 2001 to 2009. See Social Exclusion Rate in the glossary.

[75] In an international study, Pirani and Schifini (2010, p. 5 f.) show a correlation between unemployment or being a housewife/househusband and the feeling of social exclusion. This does not apply to employed persons, however – not even to low-skilled workers.

France, Spain, and especially Italy, the exclusion rate rose even faster, doubling and even tripling. Strong increases were also seen in Belgium (68 percent) and Austria (54 percent). But there were also reverse trends. In Finland, the social exclusion rate dropped from 15.6 percent in 2001 to 5.1 percent in 2009. In Sweden, it remained constant at 5.7 percent.

Figure 9: Social Exclusion Rate Trends in Selected EU Countries 2001-2009



** For 2001 only EU 15 data available.*

Source: GESIS (2011)

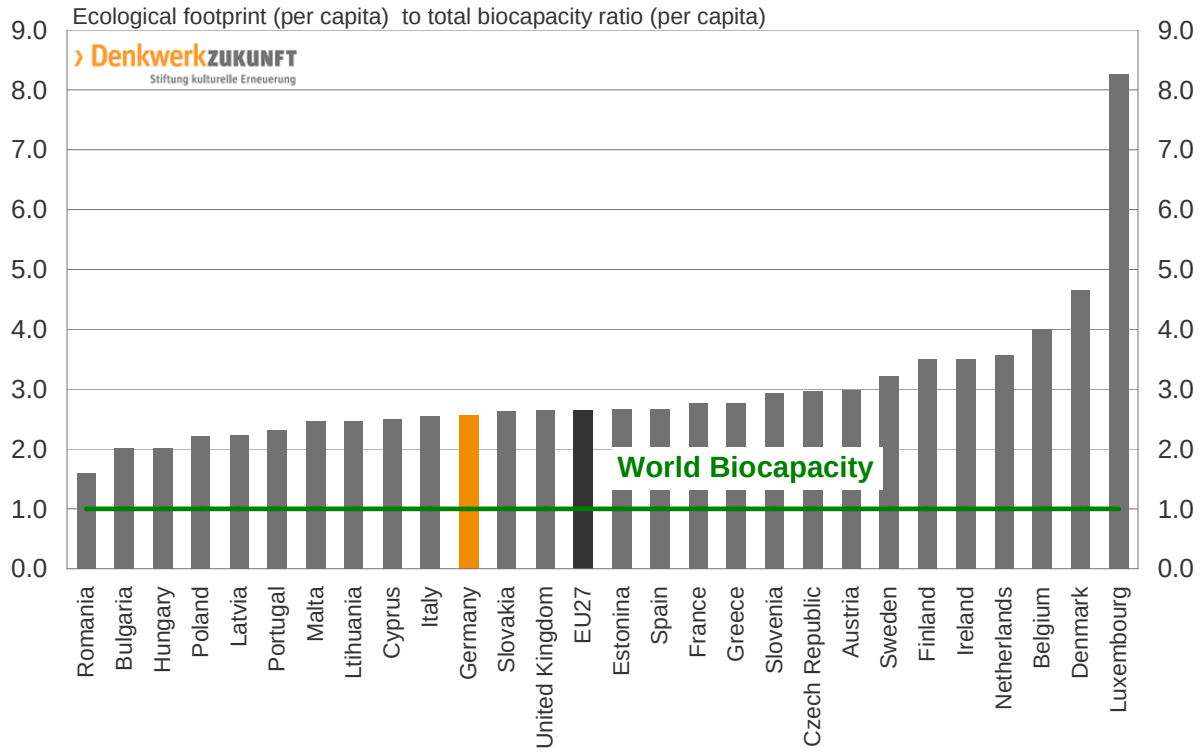
Germany has big ecological footprint

In 2008, Germany's ecological footprint was 2.6 times greater than global per capita biocapacity. Together with key land-rich and densely populated countries like Italy (2.5) and United Kingdom (2.7), Germany thus ranked among the EU average.[76] Belgium, Denmark and Luxembourg showed significantly bigger than average footprints. The smallest ecological footprint was left by Eastern European countries like Romania, Bulgaria, Hungary and Poland. This is due less to efficient, ecologically sound production methods and more to their low consumption and economic

[76] The differences between the countries are so small that they are likely to fall within the statistical error range.

activity, both of which result in lesser use of natural resources. When measured per unit of GDP (see Table 2), they use considerably more natural resources than Germany. Table 2 also shows that Germany along with United Kingdom, Ireland, Sweden, Austria and France manages natural resources most efficiently.

Figure 10: Ecological Footprint Relative to Global Biocapacity EU 2008



Source: Global Footprint Network (2011)

Table 2: Resource Efficiency in the EU 2008

	GDP per Capita (2008)	Ecological Footprint (2008)	Biocapacity Demand (in gha) per € 10,000 GDP per Capita
EU27	23,700	4.7	2.0
Belgium	30,200	7.1	2.4
Bulgaria	3,700	3.6	9.6
Denmark	39,200	8.3	2.1
Germany	29,300	4.6	1.6
Estonia	9,500	4.7	5.0
Finland	32,900	6.2	1.9
France	28,100	4.9	1.7
Greece	19,200	4.9	2.6
Ireland	39,500	6.2	1.6
Italy	24,400	4.5	1.9
Latvia	6,700	4.0	5.9
Lithuania	7,600	4.4	5.8
Luxemburg	70,400	14.7	2.1
Malta	13,000	4.4	3.4
Netherlands	34,200	6.3	1.9
Austria	32,100	5.3	1.6
Poland	7,600	3.9	5.2
Portugal	15,000	4.1	2.7
Romania	4,600	2.8	6.2
Sweden	34,700	5.7	1.6
Slovakia	9,000	4.7	5.2
Slovenia	16,700	5.2	3.1
Spain	21,700	4.7	2.2
Czech Republic	11,200	5.3	4.7
Hungary	9,300	3.6	3.9
United Kingdom	31,100	4.7	1.5
Cyprus	19,500	4.4	2.3

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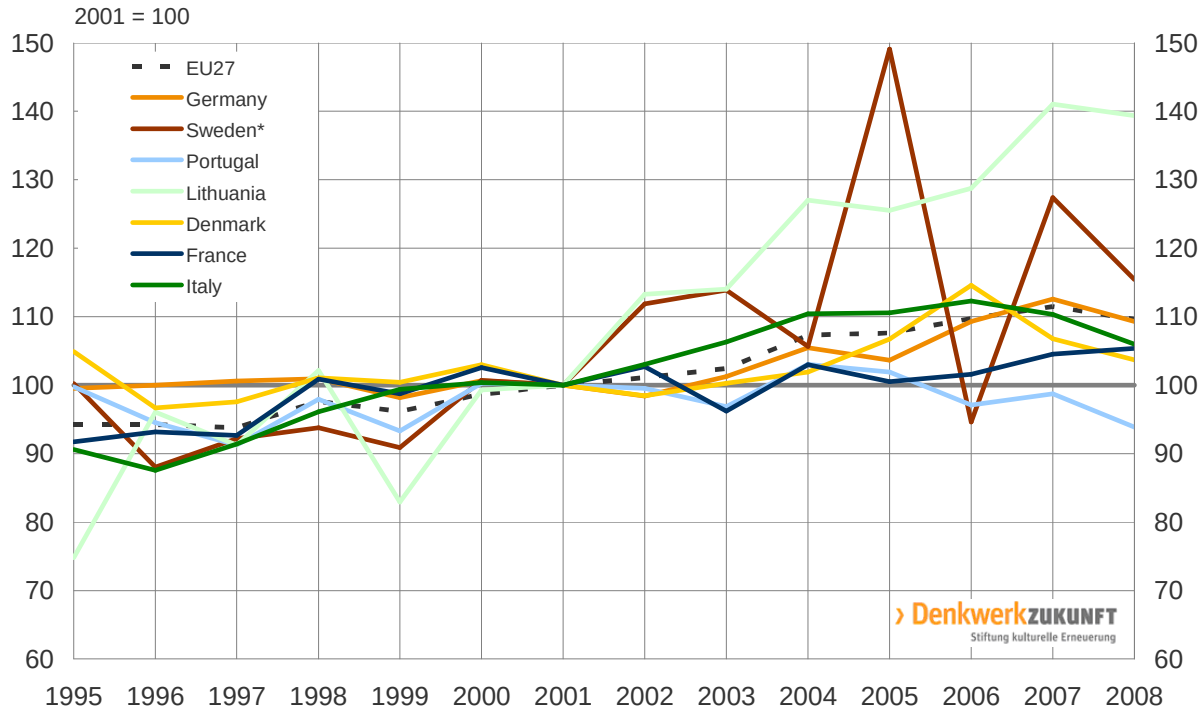
Note: To determine how resource efficient a country's economy is, the value of the goods and services (GDP) produced in that country is placed in relation to the resources used in producing those goods and services (ecological footprint (EF)). However, the EF does not illustrate anywhere near the actual industrial use of resources in a given country. As a consumption-based measurement, it takes account neither of the resources a country uses to produce goods for export, nor does it include resources used in other countries in the product of imported goods. For countries with high export quotas and trade surpluses like Germany, it cannot be ruled out that use of the EF makes an economy appear more resource-efficient than it actually is.

Sources: Eurostat (2011) and Global Footprint Network (2011)

Figure 11: Trends in Ecological Footprint Relative to Global Biocapacity in Selected EU Countries 1995-2008



** The strong fluctuation in Sweden is caused by a change in the methodologies used for the national database.*

Source: Global Footprint Network (2011)

With economic growth of around 10 percent, Germany's ecological footprint grew by only three percent between 2001 and 2008. This is due to far greater efficiency in resource use. But this does not constitute a strict decoupling of economic growth from resource use. Germany continues to draw from an ever-dwindling stock of resources.

This is especially evident when the ecological footprint is placed in relation to global biocapacity, which then reflects an increase of as much as nine percent. The cause was not, however, simply the rise in resource use, but rather the decline in global per capita biocapacity, which dropped in the same timeframe by just under six percent.[77]

With growth of nine percent, Germany ranked in mid-field with all EU countries. Greater growth was seen in Sweden (15 percent), Finland (22 percent) and

[77] Global biocapacity rose by 1.5 percent between 2001 and 2008. In the same period, the world population grew by 9 percent. As a result, per capita biocapacity dropped from 1.88 to 1.78 gha. See Global Footprint Network (2011).

especially in the Eastern European countries Slovenia (32 percent), Lithuania (40 percent) and Bulgaria (40 percent)[78] (see Fig. 11). Compared with Germany, significantly smaller increases in the size of their footprints relative to global biocapacity were seen in Denmark (4 percent), Spain (4 percent) and France (5 percent). Portugal's footprint actually shrank by as much as six percent.

Alarming public debt rate in Germany

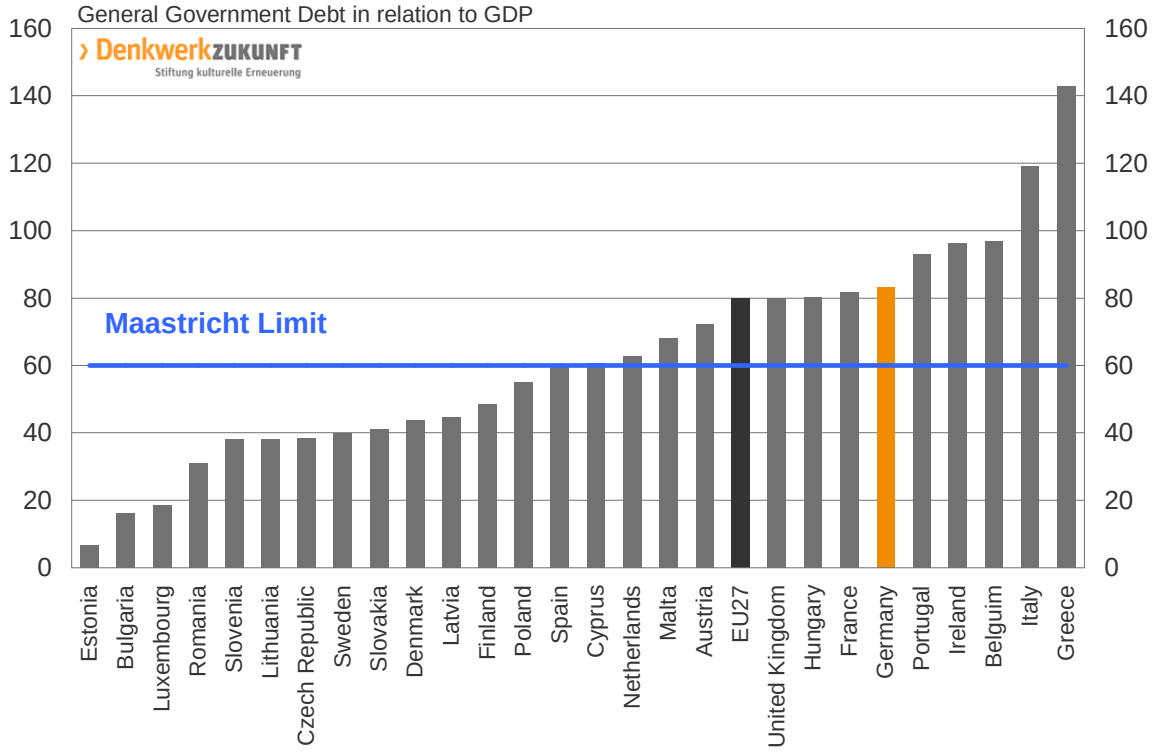
In 2010, Germany had a public debt rate of 83 percent (Fig. 12) and thus above the EU average of 80 percent. Together with other land-rich and densely populated countries like the United Kingdom and France, Germany has thus reached a debt rate that significantly restricts its scope for policy activities and impairs its economic progress.[79] Considerably lower debt rates were seen in Eastern Europe and in Scandinavia. In Estonia, Bulgaria and Luxembourg, public debt had not even reached 20 percent of GDP. In Sweden, Denmark and Finland, it stayed below 50 percent and thus clearly below the Maastricht threshold.[80] The debt rate exceeded GDP Italy and Greece and almost reached it in Ireland and Belgium.

[78] After 1989 economic production saw a severe slump in Eastern European countries. Since 1993, their economies have grown faster than the EU average. The associated increase in consumption has significantly increased the region's ecological footprint.

[79] See Section 5.1. IMF forecasts indicate that Germany's debt rate will drop to 72 percent by 2016. The EU rate will remain around 80 percent, however. See IMF (2011).

[80] See Section 5.2.

Figure 12: Public Debt Rate in the EU 2010



Source: Eurostat (2011)

As shown in Fig. 13, Germany's public debt rate rose somewhat faster than the EU average. In 2001 it was just below 60 percent. This strong increase was largely due to the economic downturn caused by the financial crisis in 2009.[81] Germany was particularly hard hit, causing the German government to introduce a comprehensive stimulus package to counter its effects.[82] The situation was similar in the United Kingdom and France. The speed with which the debt rate has recently risen in many EU countries is unprecedented. While in the past, it took twenty years for the debt rate to increase by 20 percent, it only took three years during the recent financial and economic crisis.[83] That the debt rate can also drop despite such crises is shown by Denmark and Sweden. Denmark reduced its public debt rate from 50 to 44 percent during the period 2001 to 2010. Sweden managed a cut from 55 to 40 percent. Both countries achieved these reductions with a combination of cuts in social services and

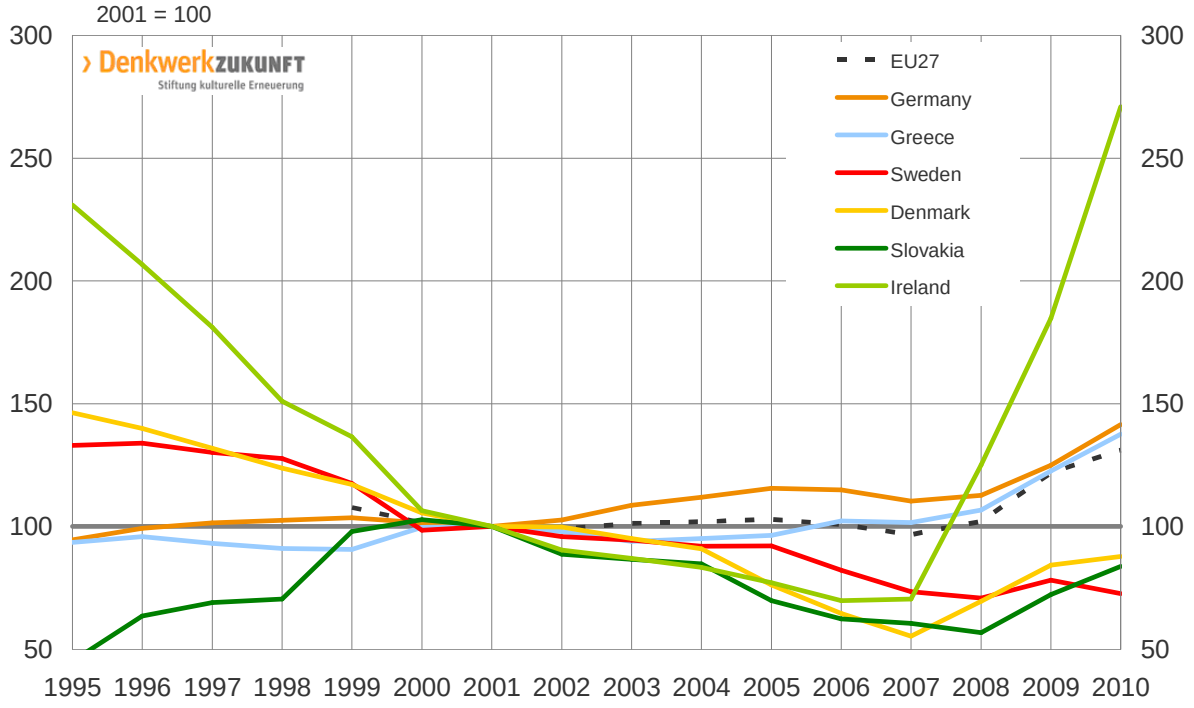
[81] Germany's economic downturn of 5.1 percent was greater than the EU average of 4.3 percent. See Eurostat (2011). Without this slump, the German government would have been able to reduce its new net borrowing to zero by 2011. See BMF (2007).

[82] The stimulus packages I and II introduced in 2008 and 2009 to secure jobs and boost economic growth were worth a good €80 billion. See BMWi (2009).

[83] See Hishow (2010), p. 7.

civil service salaries, and by increasing taxes and social insurance contributions.[84] Some Eastern European countries were also able to reduce their debt rates quite significantly: Slovakia achieved a drop from 49 to 41 percent, while Bulgaria managed an impressive slide from 66 to 16 percent.

Figure 13: Public Debt Rate Trends in Selected EU Countries 1995-2010



Source: Eurostat (2011)

The Prosperity Quintet as an early warning system

If the Prosperity Quintet is viewed in its entirety as shown in Table 3 and Figure 4, Germany fares very well in a comparison of the EU27. Its economic strength is above average despite the many pressures.[85] This also applies for its efficiency in the use of natural resources even though consumption remains high, as seen in the country's ecological footprint in relation to global biocapacity. Economic strength and material wealth are both put into perspective by high debts: if the increase in GDP were amended to take in public debt, little would be left of that growth.[86]

[84] See Ecker et al. (2010).

[85] Germany thus belongs to those European countries in which the impact of an ageing society is already quite advanced. Also, considerable economic adjustments were necessary following German reunification.

[86] In terms of sheer numbers, GDP increased by €650 billion and public debt by €1,005 billion between 1995 and 2010.

In the EU comparison, the below-average number of those who feel excluded from society indicates a relatively intact, solidarity-based society. This is all the more impressive because in recent years, German society has drifted apart in terms of material wealth. As the marked increase in the 80/20 ratio shows, the wealth generated was enjoyed by a disproportionate number of the financially better off, while the less well-off had tangibly less available. As a result, Germany's ranking in terms of income distribution fell to almost level with the EU average.

It would appear that social institutions like the jobs market and clubs and associations, but also local roots and regional identity, play an integrating role that prevents the widening income gap from effecting a similarly high increase in the social exclusion rate. This could change, however, if material wealth and consumer options stagnate or decline for large groups of society (not least because they can no longer be kept artificially high because of the debt ceiling) while the income gap continues to widen.[87] This is where the socio-economic indicators in the Prosperity Quintet could serve as an early warning system.

In a country like Germany, which is based on social solidarity, the strong increase in the 80/20 ratio indicates a need for social and policy action. Denkwerk Zukunft has put forward a number of proposals in conjunction with other organisations.[88] These must be followed up and developed further. Action is also needed in respect of the ecological footprint. While Germany is among Europe's pioneers when it comes to efficient use of resources and environmental goods, its efforts are not in themselves enough to meet the national and international challenges in mitigating climate change. Policy measures are needed which accelerate the necessary behavioural change among producers and consumers.[89] And they must be structured so they do not push public debt even higher or are financed by effecting cuts in other areas.

[87] See also Miegel (2010) and Miegel/Wahl/Schulte (2011).
[88] See Ernst Freiberger-Stiftung (2010).
[89] See Miegel/Wahl/Schulte (2011), particularly Sections 4 and 5.

Table 3: EU Country Groups Using the Prosperity Quintet 2008/2010

	GDP per Capita[1)]	80/20-Ratio[1)]	Social Exclusion Rate[1)]	Ecological Footprint[2)]	Public Debt Rate[3)]
Countries with significantly above-average prosperity (++++)					
Denmark	+	+	+	-	+
Finland	+	+	+	-	+
Sweden	+	+	+	-	+
Countries with above-average prosperity (+++)					
Estonia	-	+	+	-	+
Germany	+	+	+	(-)	-
Ireland	+	+	+	-	-
Luxembourg	+	+	-	-	+
Netherlands	+	+	+	-	(-)
Poland	-	+	+	(-)	+
Slovakia	-	+	+	(-)	+
Slovenia	-	+	+	-	+
Countries with average prosperity (++)					
Austria	+	+	-	-	(-)
Belgium	+	+	-	-	-
Cyprus	-	+	+		
Czech Republic	-	+	-	-	+
France	+	+	-	-	-
Hungary	-	+	+	(-)	(-)
Latvia	-	-	+	(-)	+
Malta	-	+	+	(-)	(-)
Romania	-	-	+	(-)	+
Spain	-	-	+	-	+
United Kingdom	+	-	+	(-)	(-)
Countries with below-average prosperity (+)					
Bulgaria	-	-	-	(-)	+
Italy	+	-	-	(-)	-
Lithuania	-	-	-	(-)	+
Countries with significantly less than average prosperity (-)					
Greece	-	-	-	-	-
Portugal	-	-	-	(-)	-

Note: [1)]Countries which fare better than or equal to the EU27 average are marked with a "+". Those which fare worse with a "-". [2)]Countries which fare better than or equal to the EU27 average are marked with a "(-)", those which fare worse with a "-". Only those countries with a value less than 1 were marked with a "+". This applies to none of the countries at present. [3)]Countries with a value less than or equal to the Maastricht Limit of 60 percent are marked with a "+". Countries with a value above the EU average receive a "-". Countries with values between the Maastricht Limit and the EU average receive a "(-)".

Source: Denkwerk Zukunft

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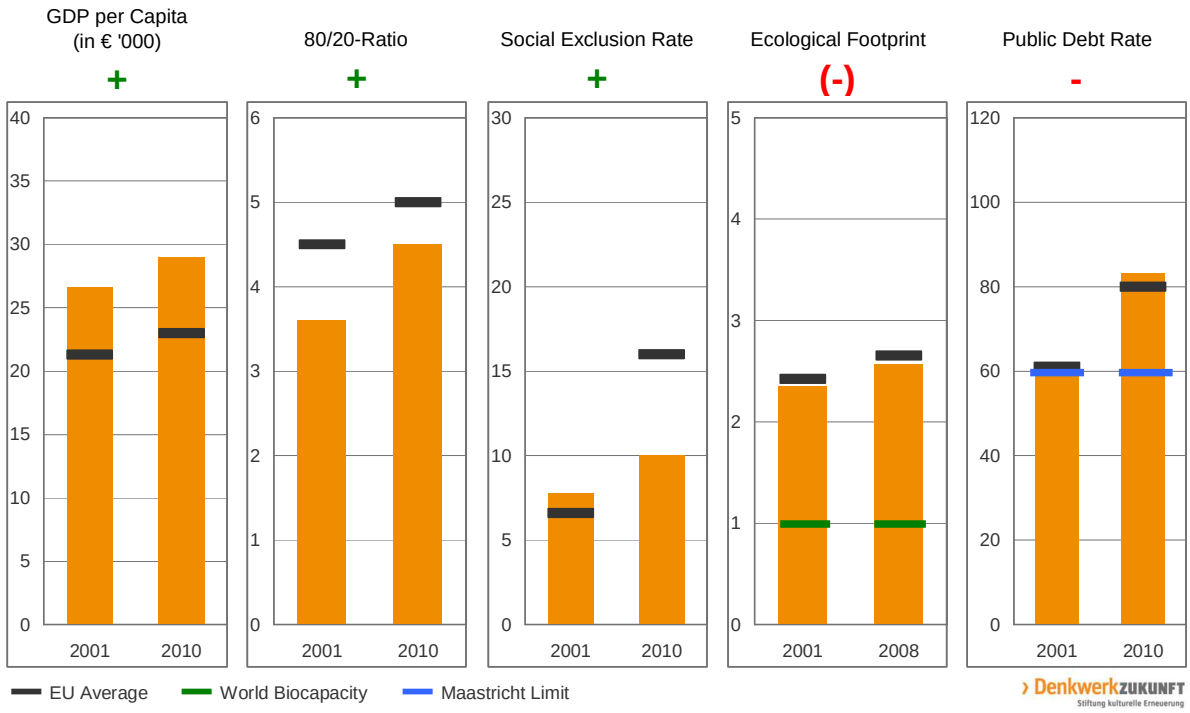
Figure 14: The Prosperity Quintet in Germany (+++)



Source: Eurostat (2011), European Commission (2010), Gesis (2011), Global Footprint Network (2011)

6.2 Conclusions drawn from the Prosperity Quintet

The Prosperity Quintet provides a nuanced picture of prosperity. By adding economic wealth indicators in the form of social, environmental, spatial and temporal dimensions, the prosperity assessments of various countries tend to change considerably. Apparent increases in wealth actually turn out to be losses of prosperity. Countries which enjoy economic success and thus wealth forfeit a large portion of that wealth once their use of resources and environmental goods and also their debt rates are added to the equation. For example, the United Kingdom and France, which demonstrate above-average GDP per capita and thus rank high on the list of perceived wealthy countries, find themselves in the EU mid-field if environmental and social prosperity indicators are taken into account. By way of contrast, countries with only average material wealth rise up the prosperity scale by demonstrating marginal income inequality, less social exclusion and lower debt rates.

Looking across the board, applying the Prosperity Quintet shows no EU country to be environmentally prosperous. Neither those with strong economies because their high

GDP means high consumption of natural resources, nor those with weak economies because they tend to have inefficient, resource-heavy production.

Winners and losers of posperity

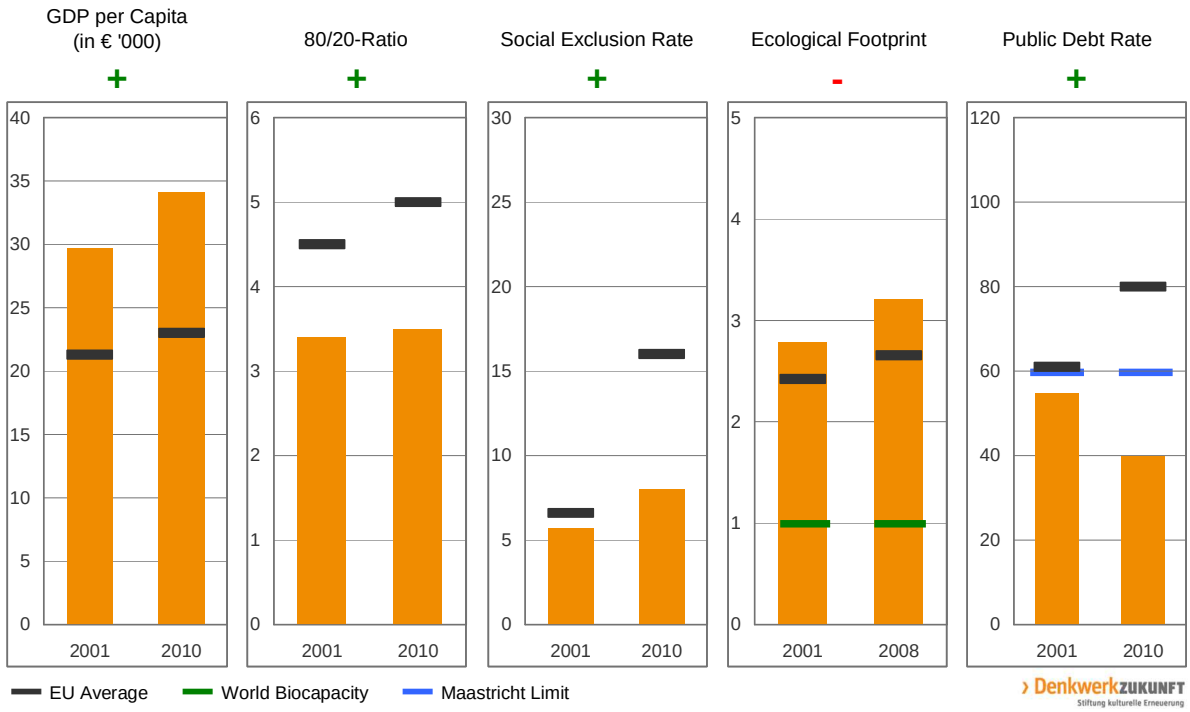
Against this backdrop, it is possible to identify the prosperous and less prosperous countries in the EU (see Table 3 and Figure 15). Among those with well above-average prosperity as measured by the Prosperity Quintet are the Scandinavian countries Denmark, Finland and Sweden. In an EU comparison, they have above-average GDP per capita, an above-average 80/20 ratio, low social exclusion, and their public debt rates fall below the Maastricht Limit. They appear to have lighted on a social model which combines material and social prosperity without forfeiting productive vibrancy or borrowing from the future.

These are followed by the Western European countries of Germany, Ireland,[90] Luxembourg and the Netherlands, and the Eastern European states of Estonia, Poland, Slovakia and Slovenia. As seen in the group of countries with well above average prosperity, the Western European countries have above average wealth and 80/20 ratios and, in most cases, their social exclusion rate is below average. However, in each case, the above average material wealth is linked to an above average debt rate. By way of contrast, in Estonia, Poland, Slovenia and Slovakia GDP per capita and the debt rates are below the EU average.

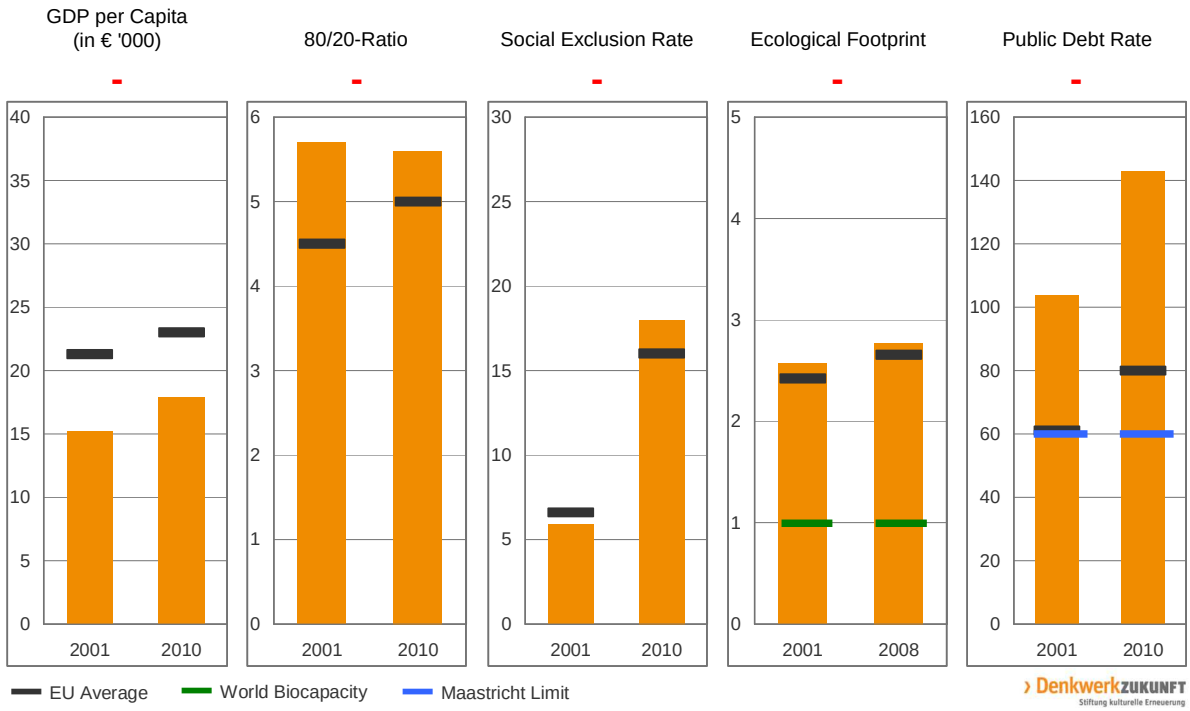
In the group of countries with average prosperity, Austria, Belgium and France all show above average material wealth and below average income inequality. However, many people in these countries feel they are excluded from society. The public debt rates are also above average. The United Kingdom only exceeds the EU average in the economic dimension of wealth. As regards the socio-economic and social components, the indicators point to average or even below average prosperity.

[90] However, economic progress in Ireland was exaggerated due to the 'overblown' financial sector. As a result of the financial and economic crisis, Ireland's prosperity status is likely to worsen markedly in the short and medium term. Apart from a decline in per capita GDP, growing unemployment and deep cuts in the social budget could force an increase in the 80/20 ratio and the social exclusion rate.

Figure 15: Winners and Losers – The Prosperity Quintet in Sweden (++++)



The Prosperity Quintet in Greece (-)



Sources: Eurostat (2001), European Commission (2010), Gesis (2011, Global Footprint Network (2011)

The opposite situation emerges with Eastern European countries like Romania, the Czech Republic and Hungary. Their prosperity lies in the social component. Some of them show both a below-average debt rate and below-average material wealth.

Bulgaria, Italy and Lithuania enjoy below average prosperity. According to the Prosperity Quintet indicators, they only exceed the EU average in one dimension of prosperity.

In all dimensions of the Prosperity Quintet, Greece is currently significantly less prosperous than the EU average. With the exception of the ecological footprint, which marginally exceeds the EU average, Portugal fares similarly poorly. In both Southern European countries, not only is their economic strength and material wealth below average, their income inequality, social exclusion and debt rates are disproportionately high when compared with the rest of the EU. This explains why their life satisfaction levels are particularly low in EU comparison.[91]

Prosperity Quintet especially suited for use in early industrialised countries

Apart from the fact that no data is available to allow application of the Prosperity Quintet outside the EU, it is particularly suited to measuring prosperity in early industrialised countries. People in developing countries tend to have lifestyles that use fewer natural resources than those in early industrialised countries and so leave a smaller ecological footprint.[92] However, this is less to do with a conscious decision than with a lack of economic opportunity and with material poverty. Added to this come the often marked income inequalities and high levels of social exclusion, which at least in some respects stem from corrupt leadership and/or ethnic problems. Nonetheless, consideration of the ecological footprint highlights the fact that, other than in early industrialised countries, an environmental prosperity exists which should not be put at risk in the pursuit of material progress.

[91] In Greece and Portugal, only 50 percent of the population are “very happy” or “relatively happy”. This compares with the EU27 average of 78 percent. See European Commission (2011).

[92] In developing countries like Yemen, Cameroon, Cambodia, Kenya and Pakistan, the ecological footprint is about one gha – clearly below global per capita biocapacity. See Global Footprint Network (2011).

Annex I: Prosperity Quintet in the EU27

Introduction

In the Prosperity Quintet charts for each of the EU member states (EU27), both the current year and the year 2001 are given for each indicator. If no data is available for those years, the most current year is used. Due to marginal changes in the survey methodology, comparison of data on social exclusion rates for 2010 with previous years is only possible to a limited extent.[93]

With the exception of Luxembourg's GDP per capita and Greece's public debt rate, the indicators for each country apply the same scale to enable better comparison.

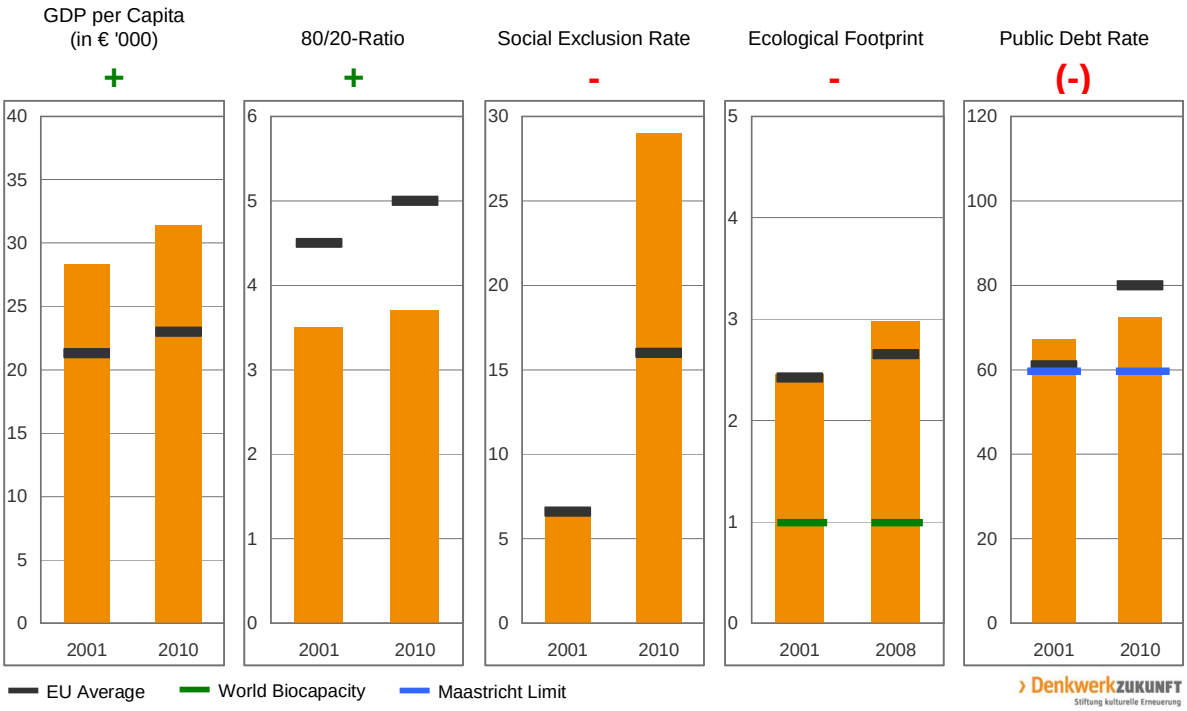
GDP per capita is shown in thousands of euros and social exclusion rates as a percentage of the total population. The 80/20 ratio reflects the relationship between the sum of the incomes of the upper 20 percent relative to that of the lower 20 percent. For all three indicators, countries that do better than the EU27 average are marked with a "+", while those that fare worse receive a "-".

The ecological footprint is shown in relation to global per capita biocapacity. Countries that do better than the EU27 average are marked with a "(-)", while those that fare worse receive a "-". Only those countries with a value less than or equal to 1 were given a "+". None of the countries fall into this category at present.

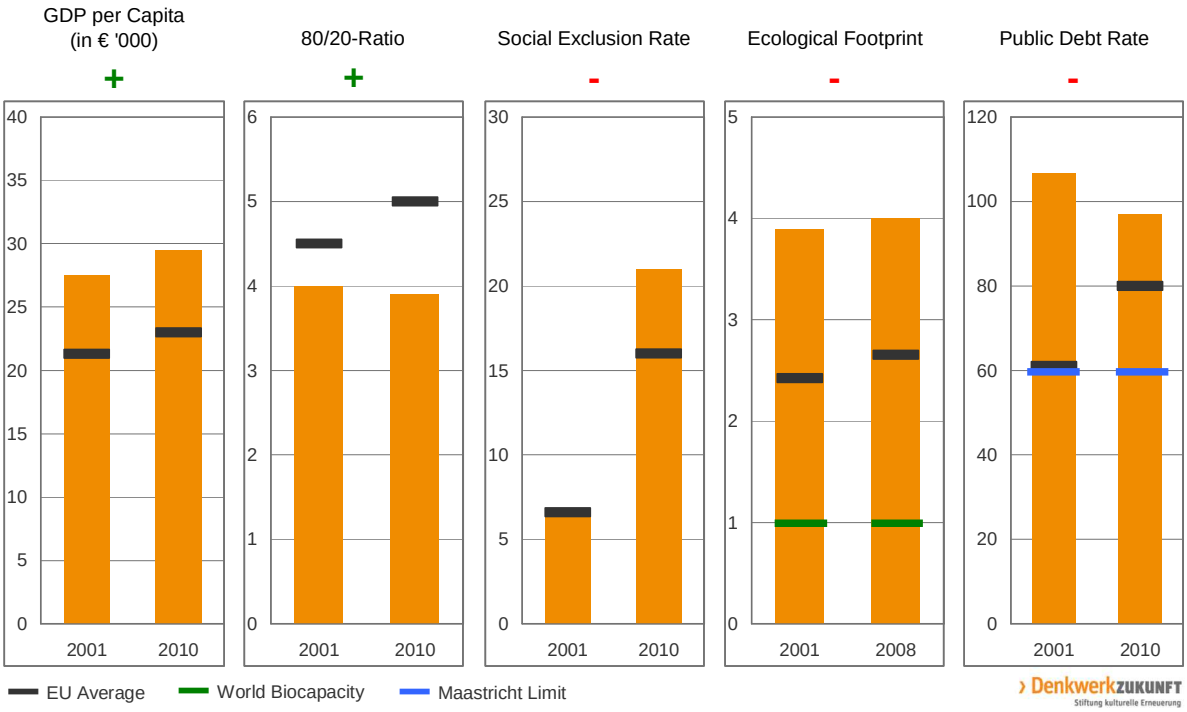
The public debt rate reflects the government's gross debt as a percentage of GDP. Countries with a value less than or equal to the Maastricht Limit of 60 percent are marked with a "+". Those with a value above the EU average have a "-". Countries that lie between the Maastricht Limit and the EU average receive a "(-)".

[93] See Social Exclusion Rate in the glossary.

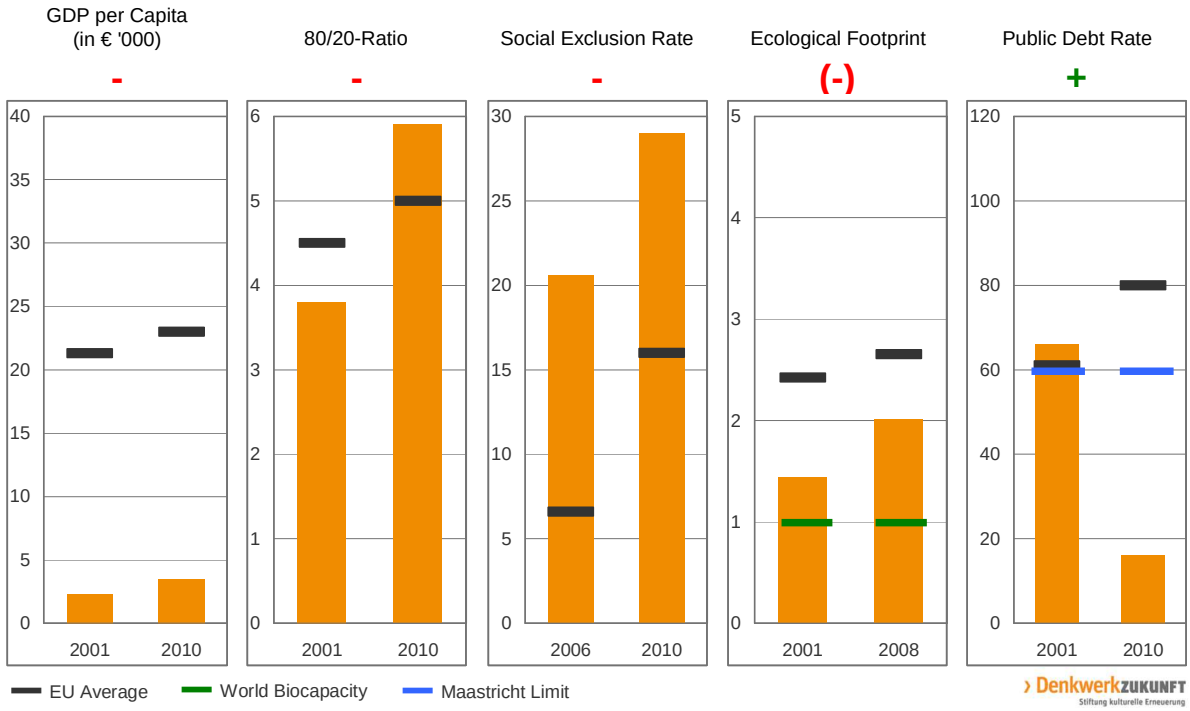
Prosperity Quintet Austria (++)



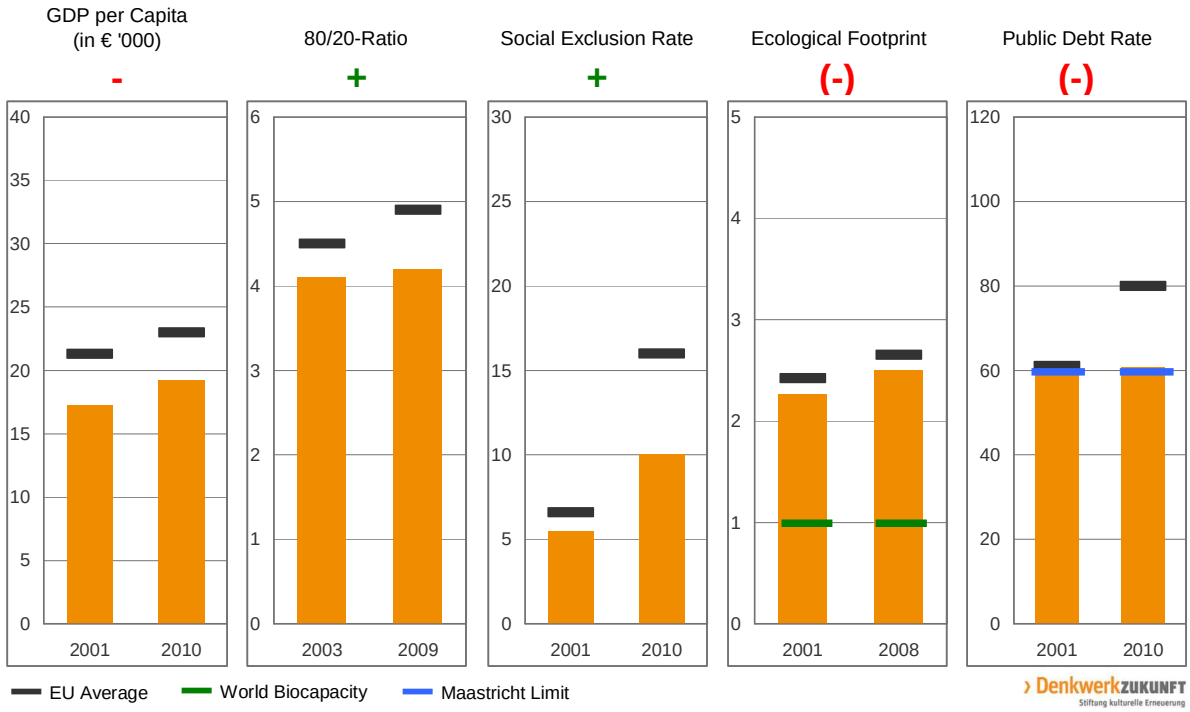
Prosperity Quintet Belgium (++)



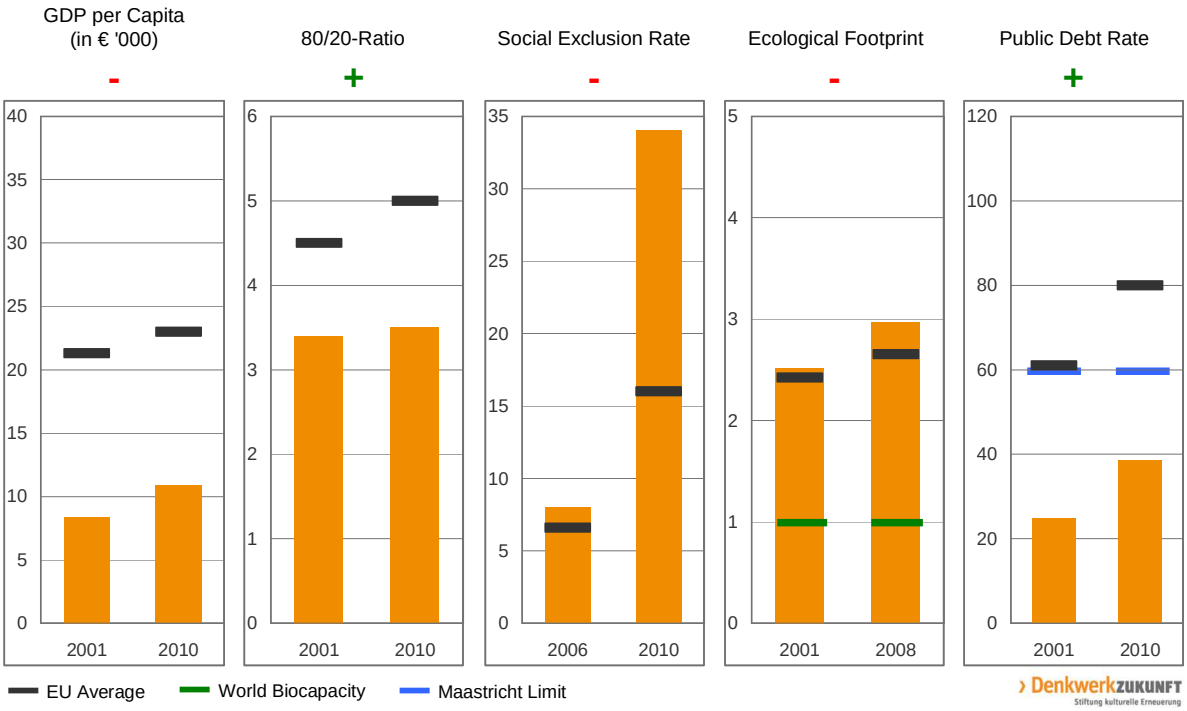
Prosperity Quintet Bulgaria (+)



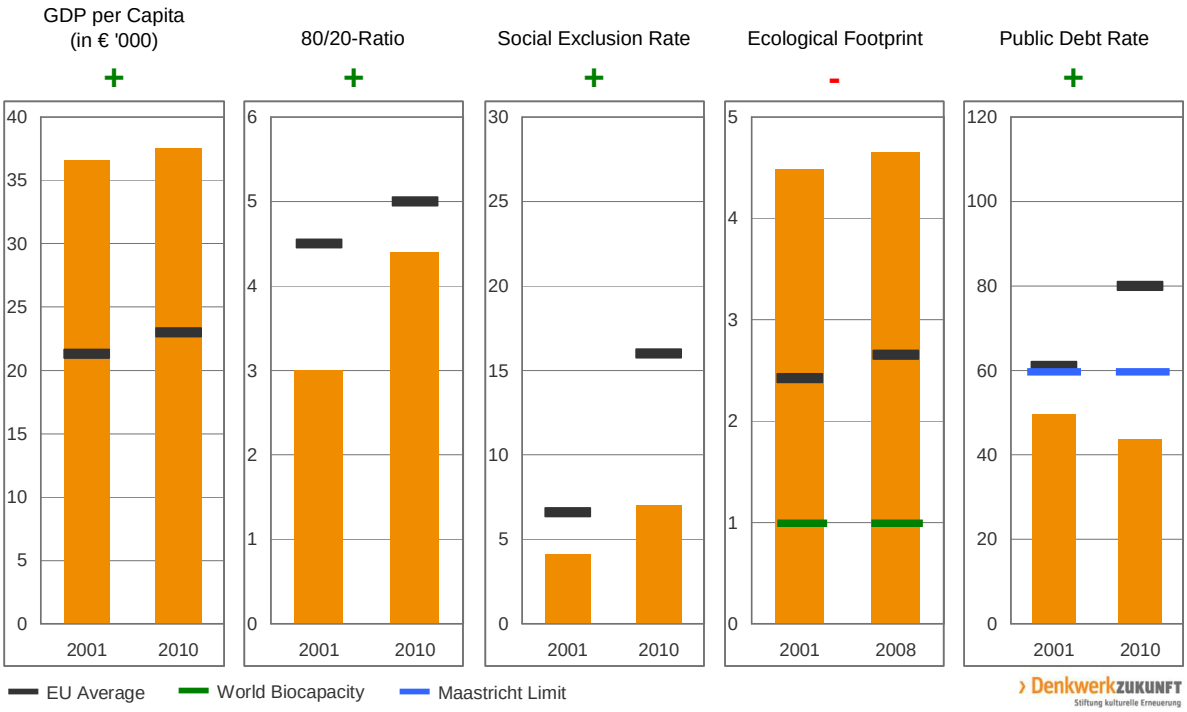
Prosperity Quintet Cyprus (++)



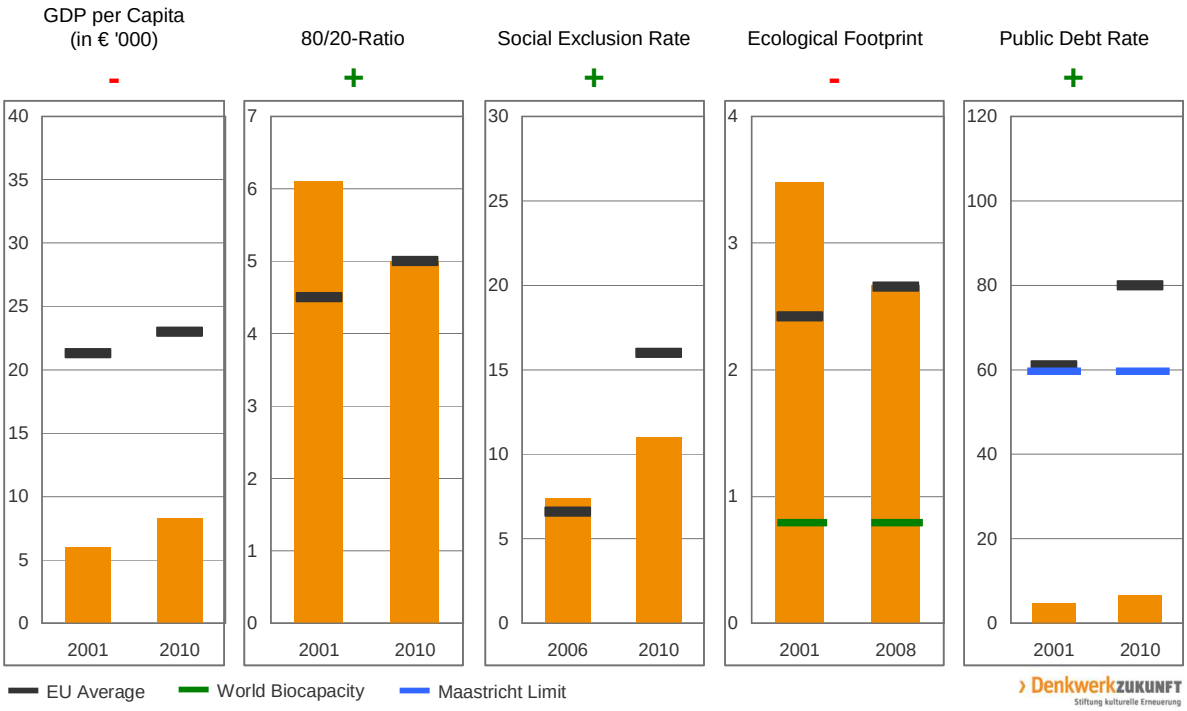
Prosperity Quintet Czech Republic (++)



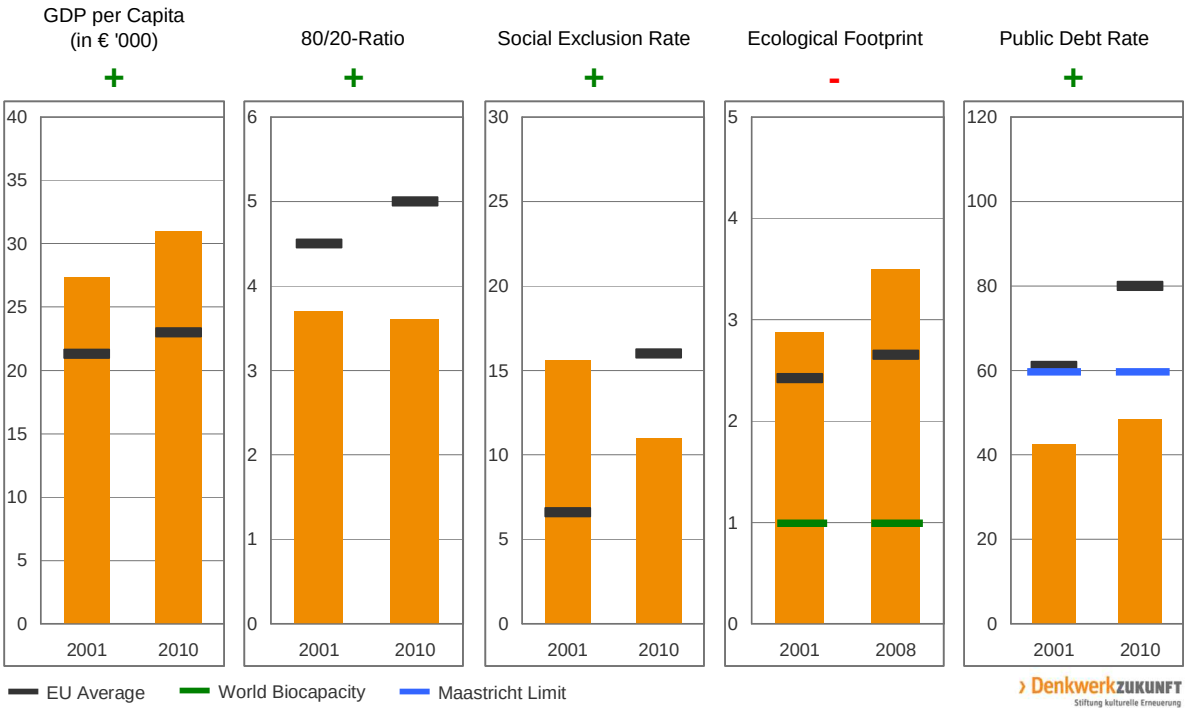
Prosperity Quintet Denmark (++++)



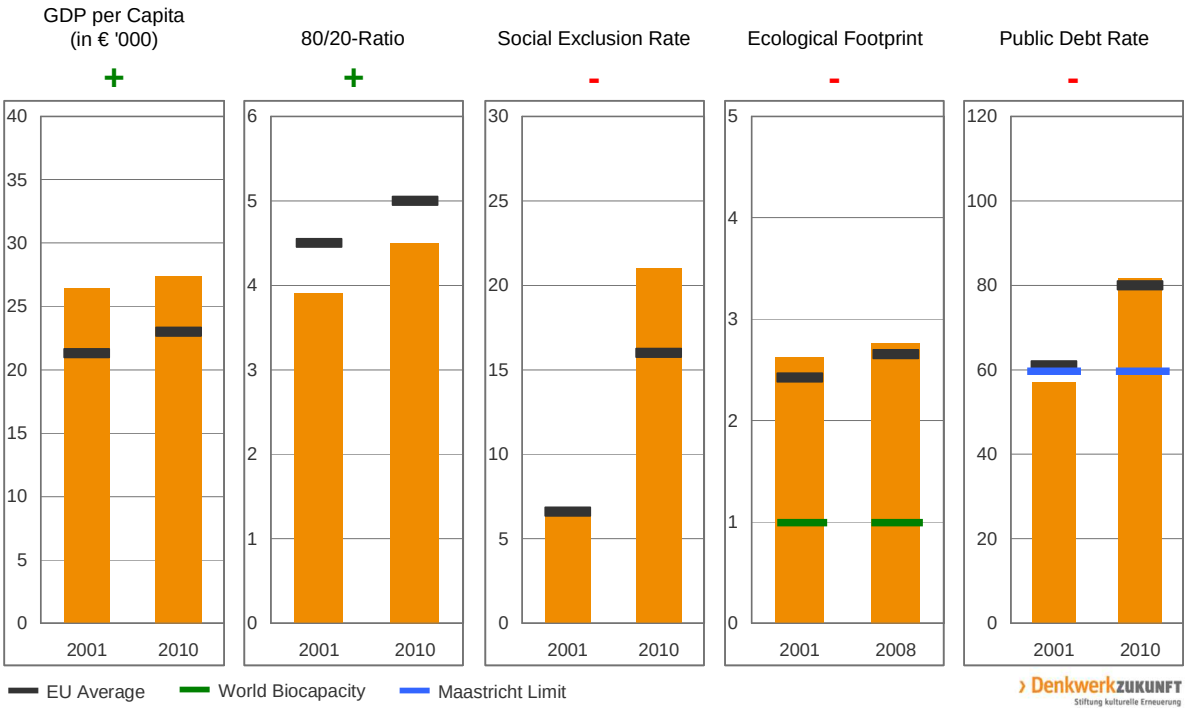
Prosperity Quintet Estonia (+++)



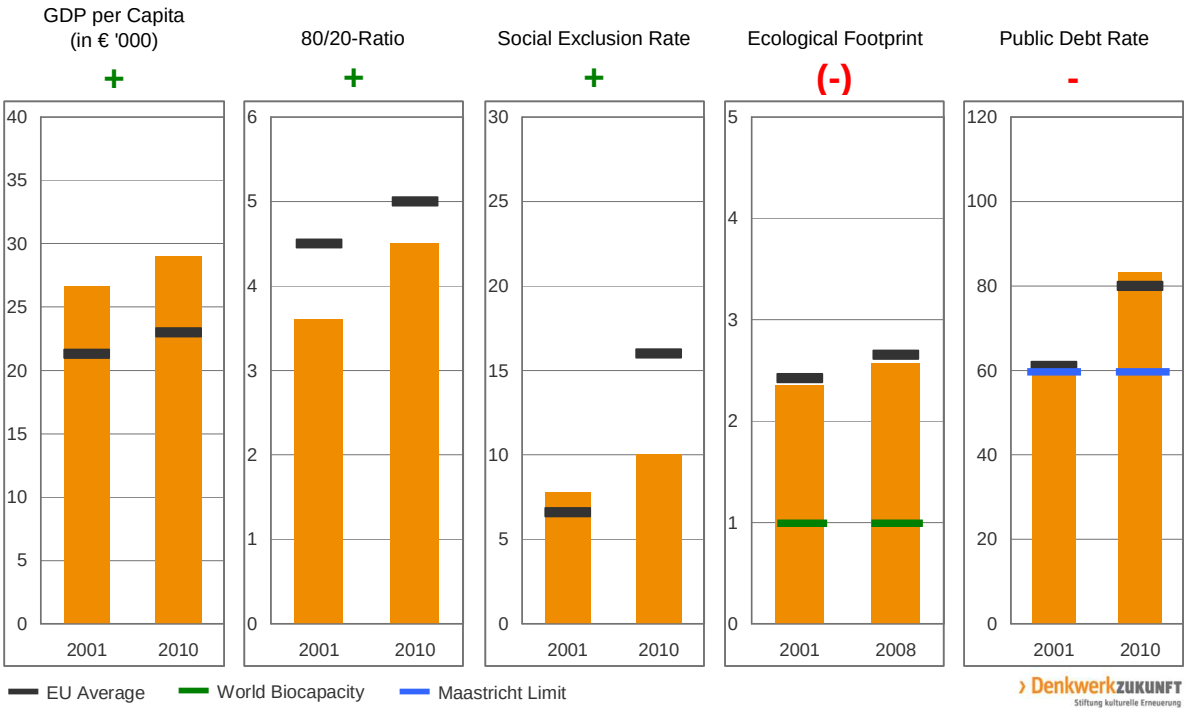
Prosperity Quintet Finland (++++)



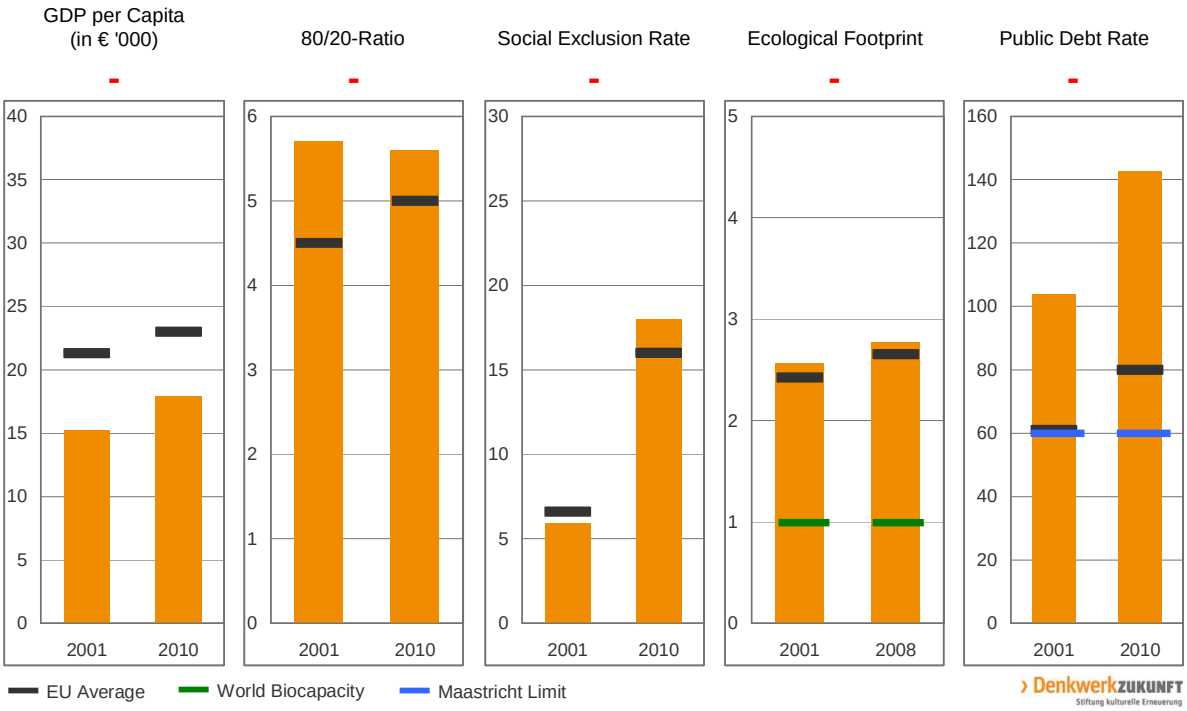
Prosperity Quintet France (++)



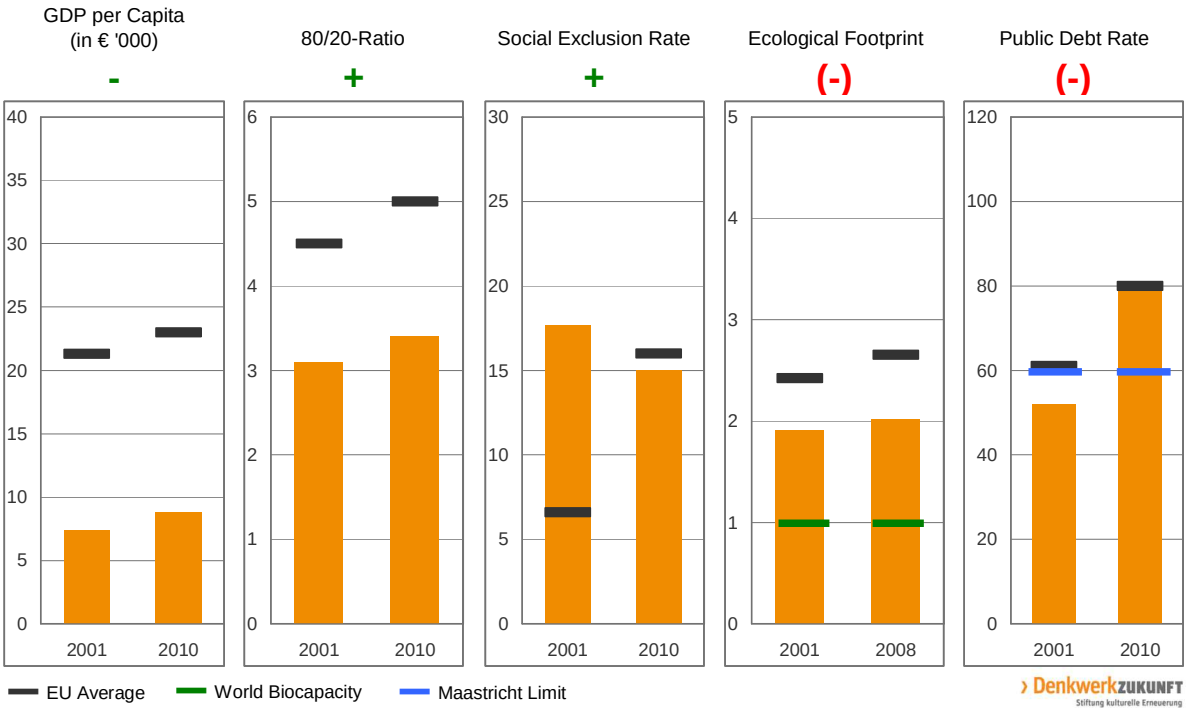
Prosperity Quintet Germany (+++)



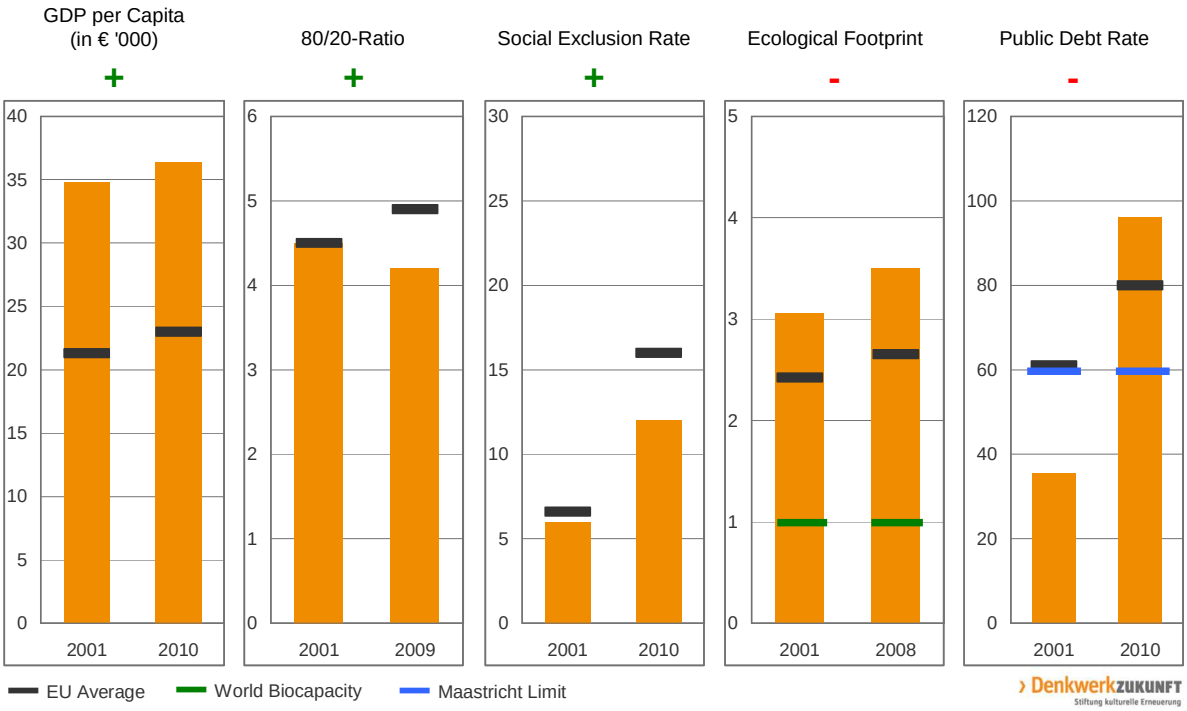
Prosperity Quintet Greece (-)



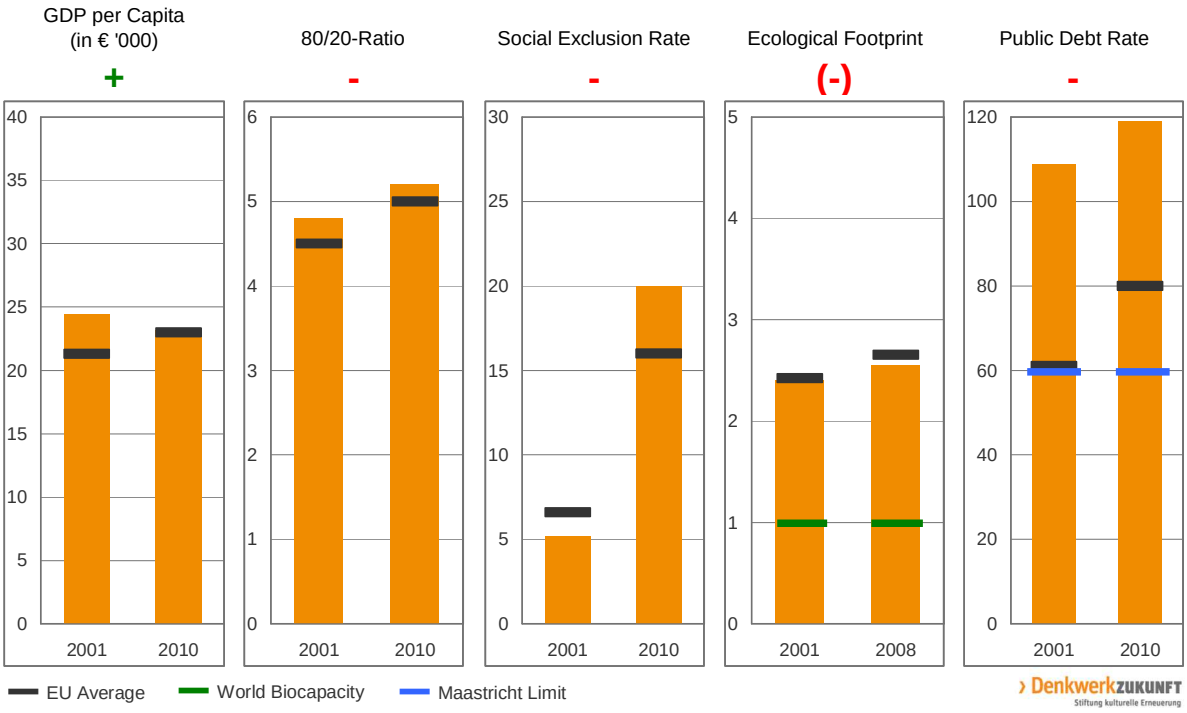
Prosperity Quintet Hungary (++)



Prosperity Quintet Ireland (+++)



Prosperity Quintet Italy (+)



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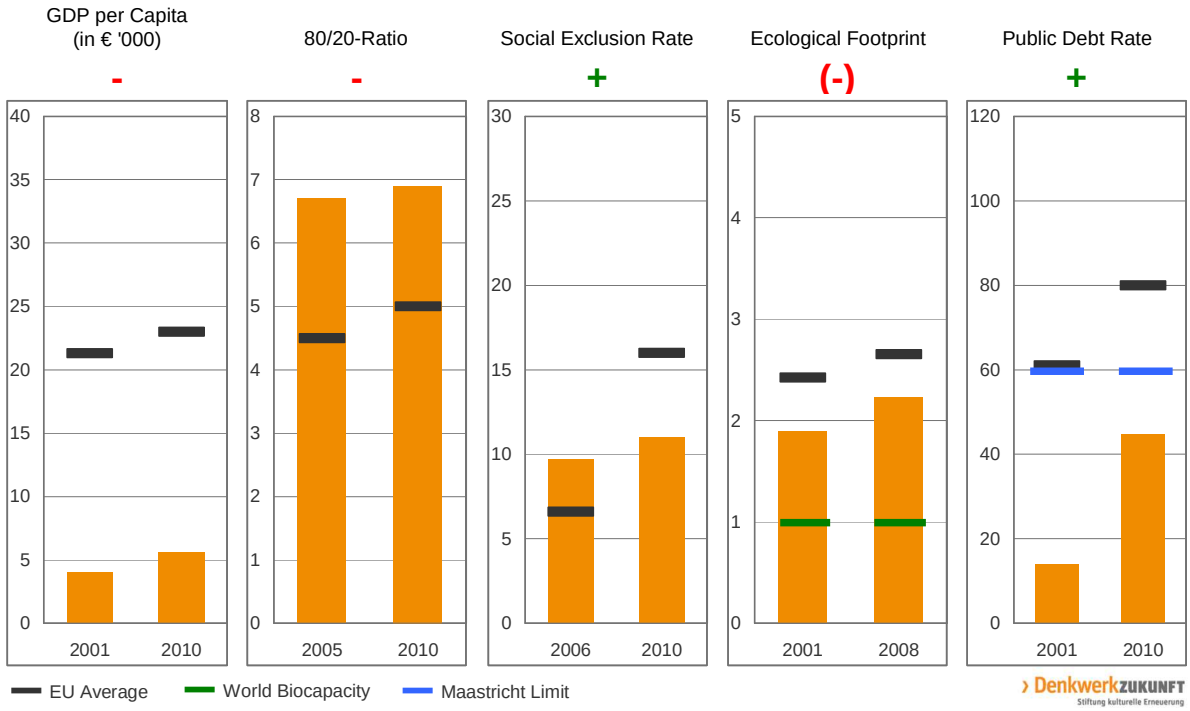

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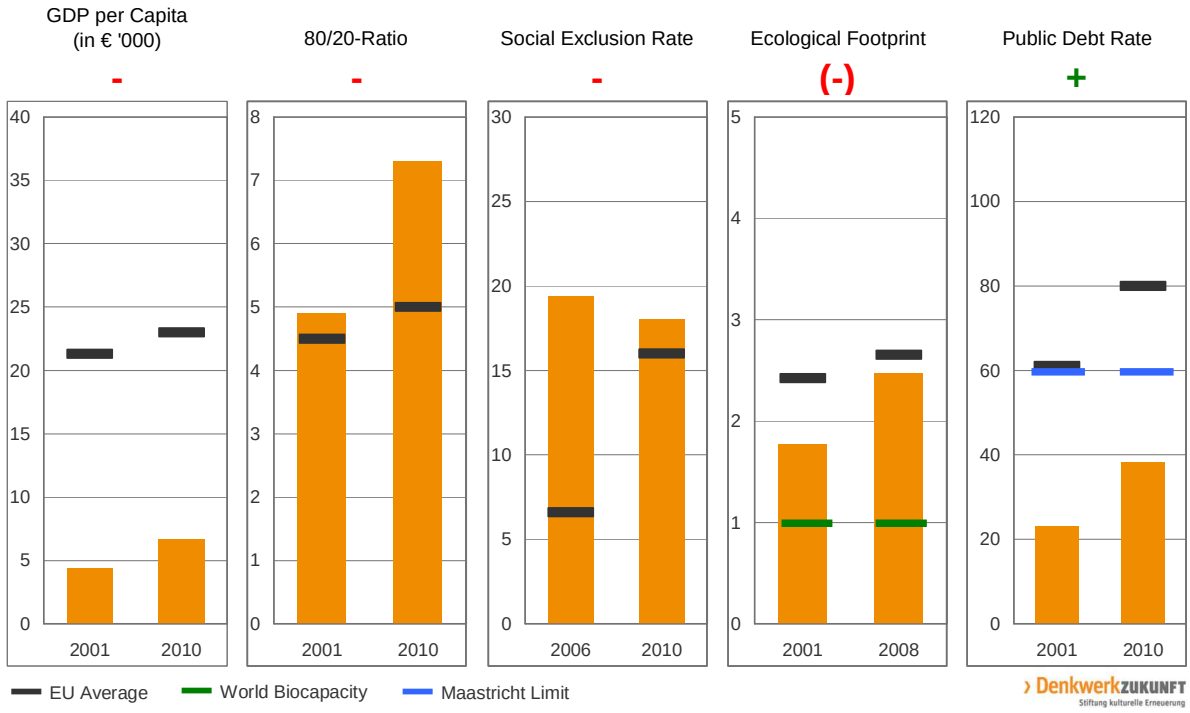

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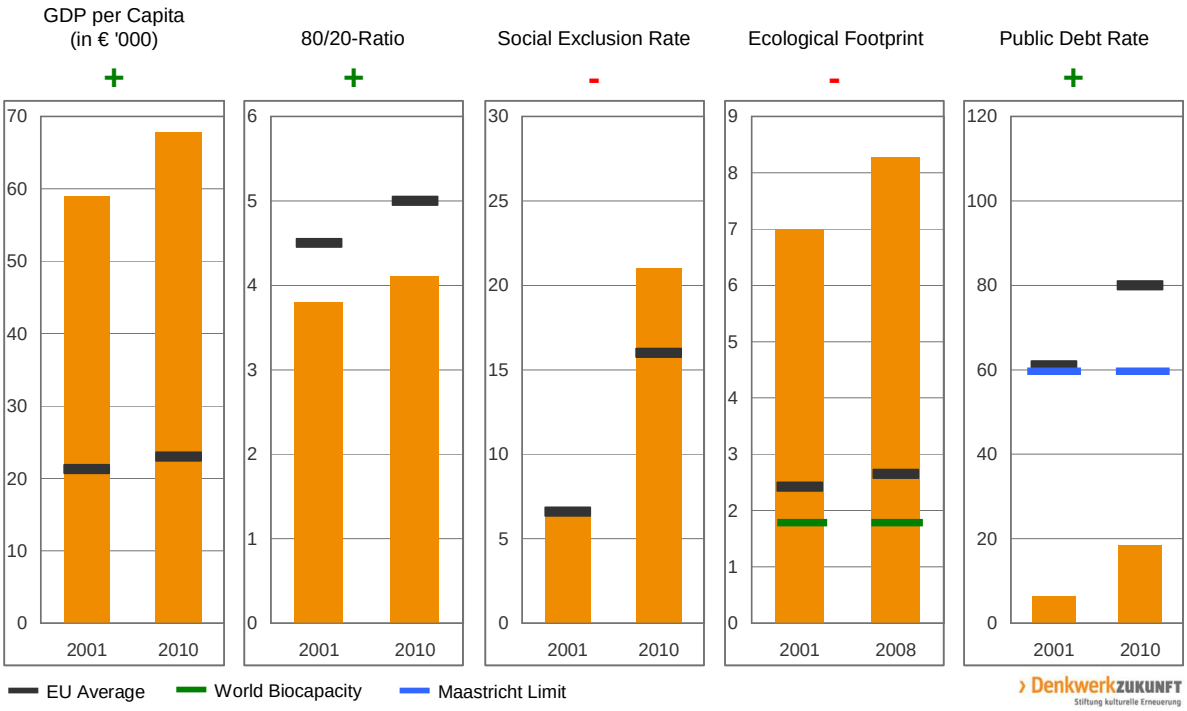

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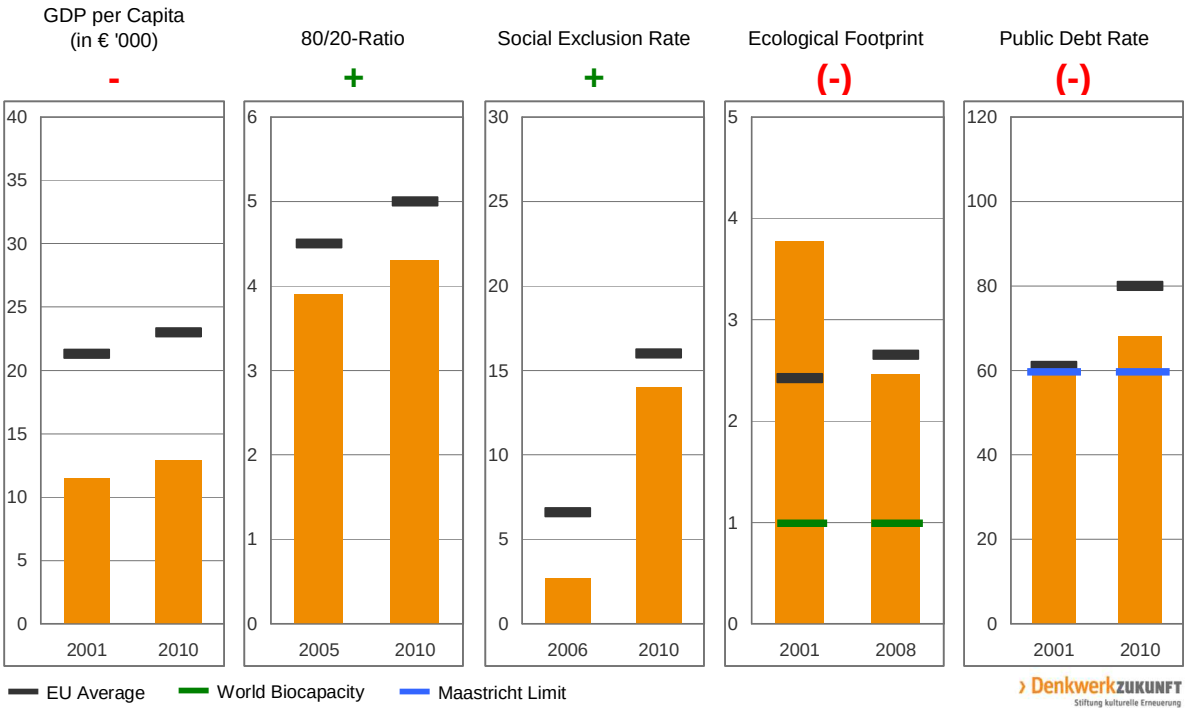

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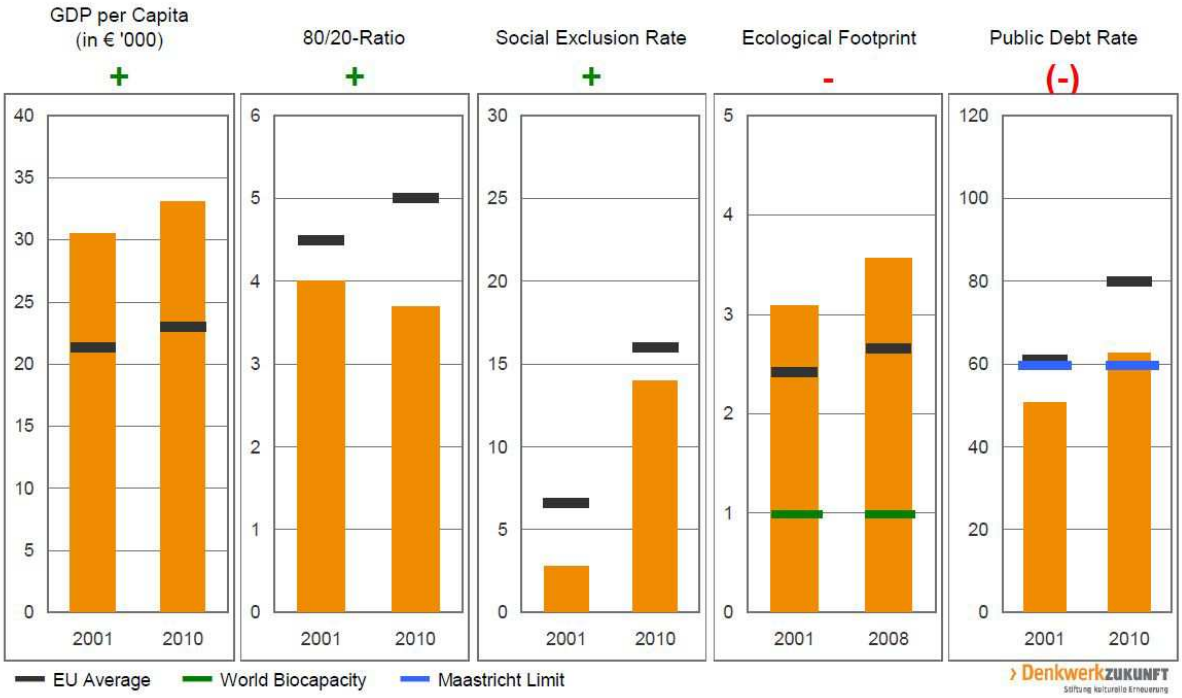

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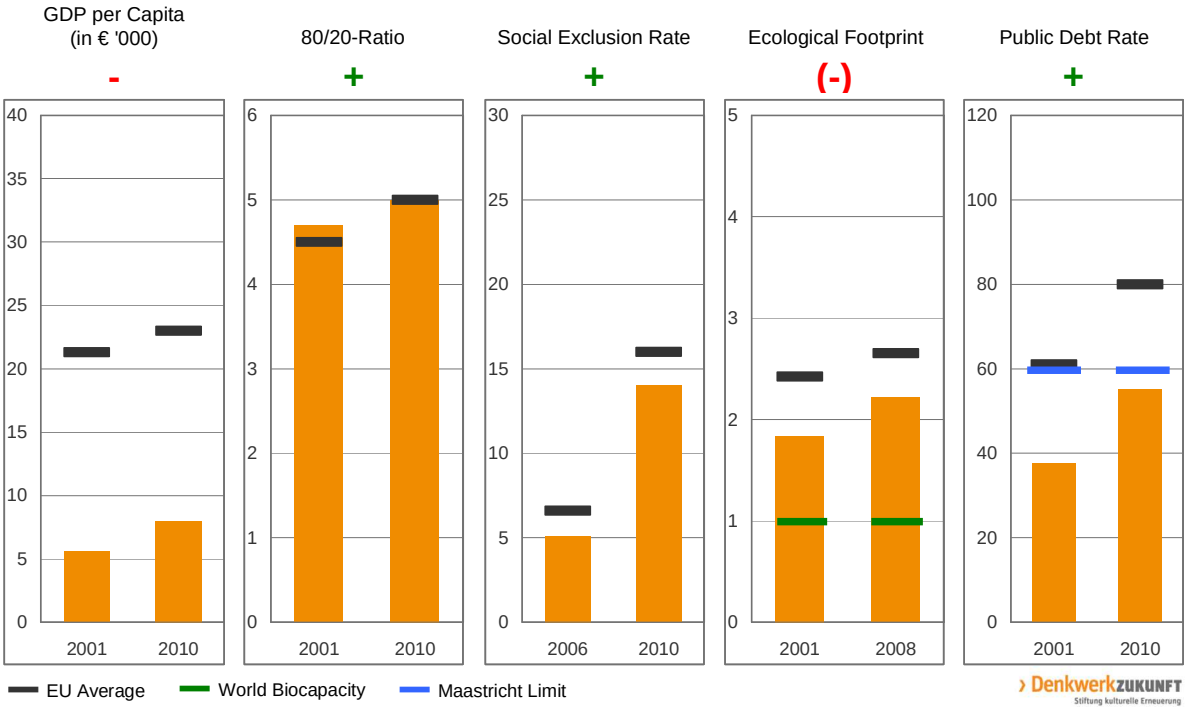

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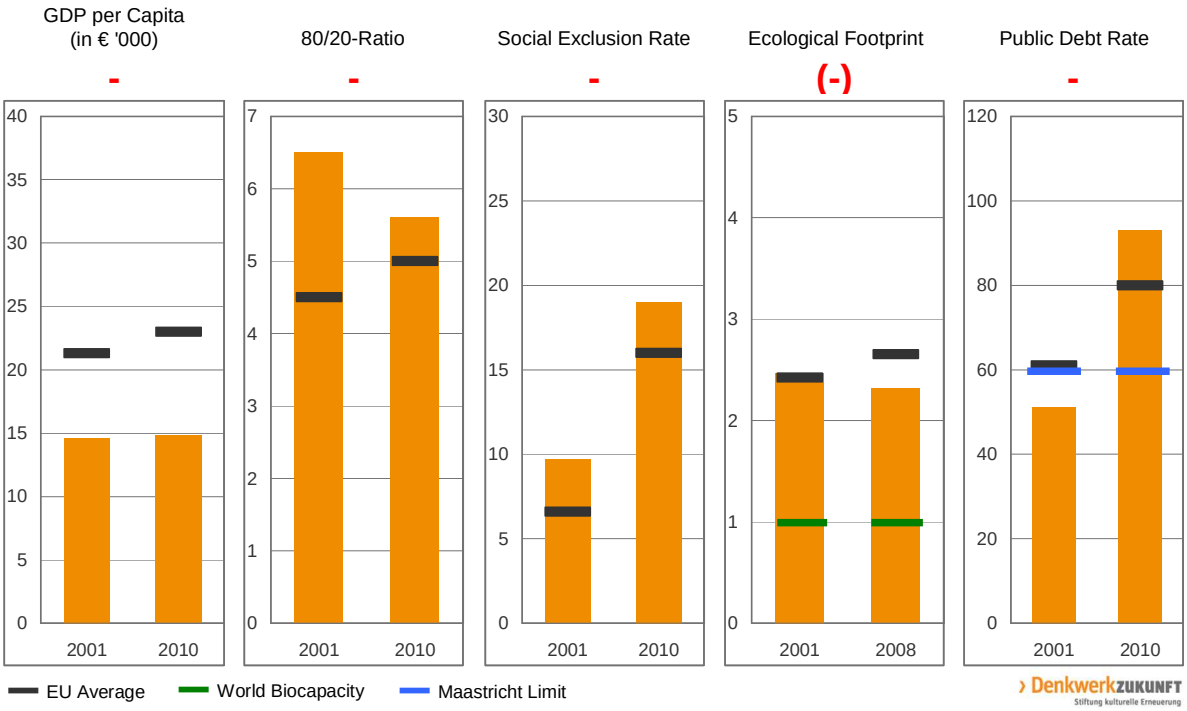

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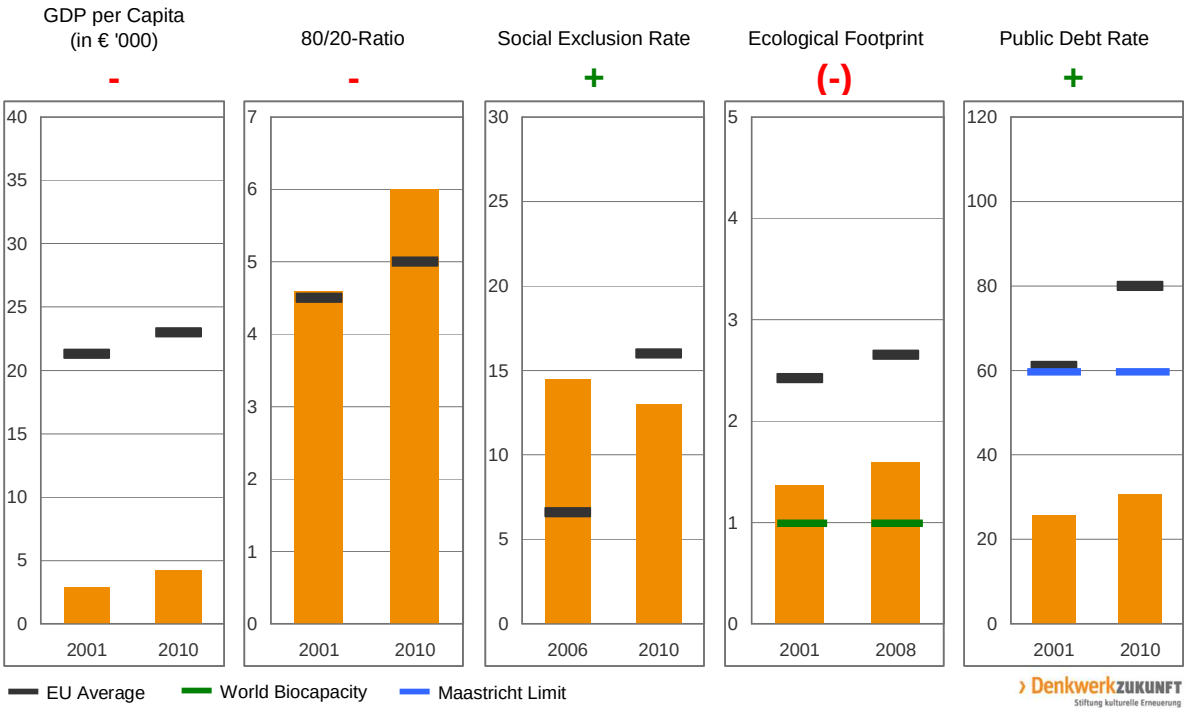

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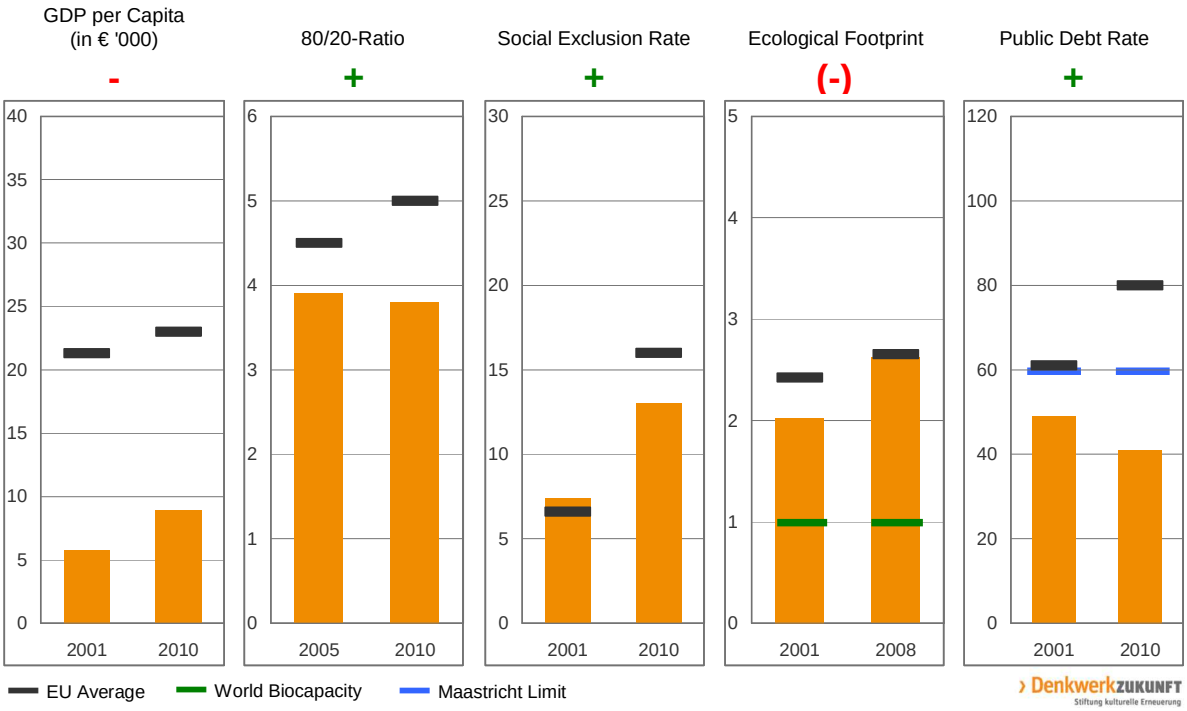

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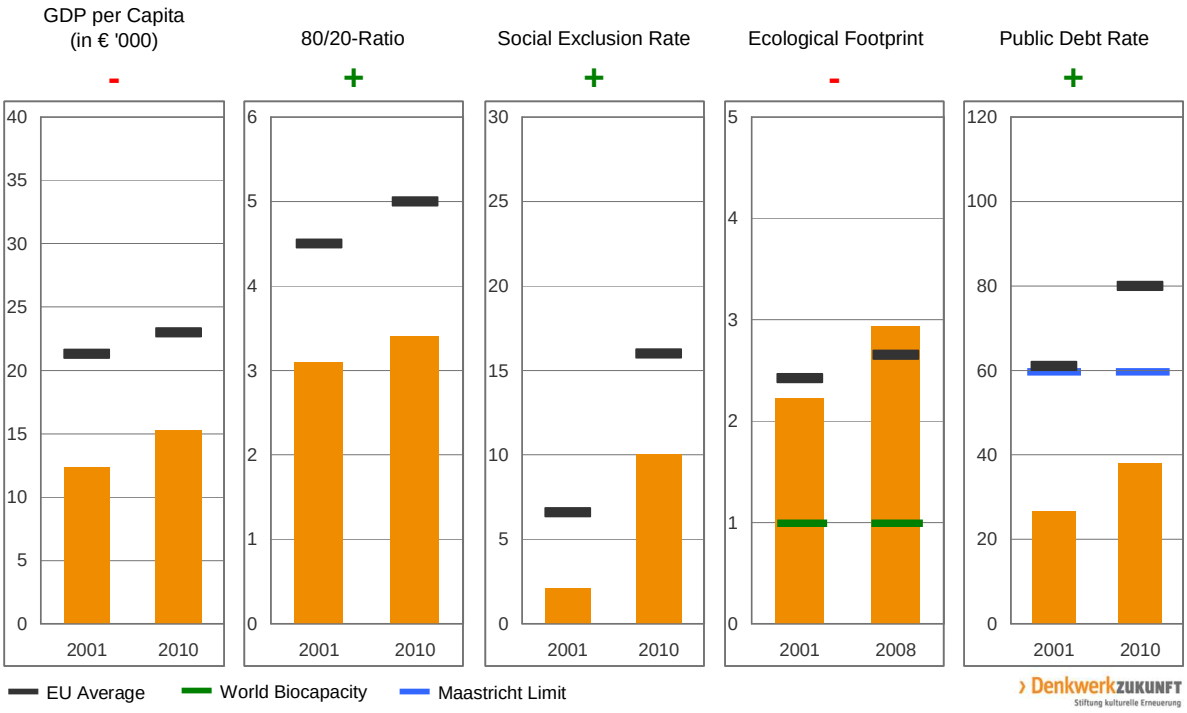

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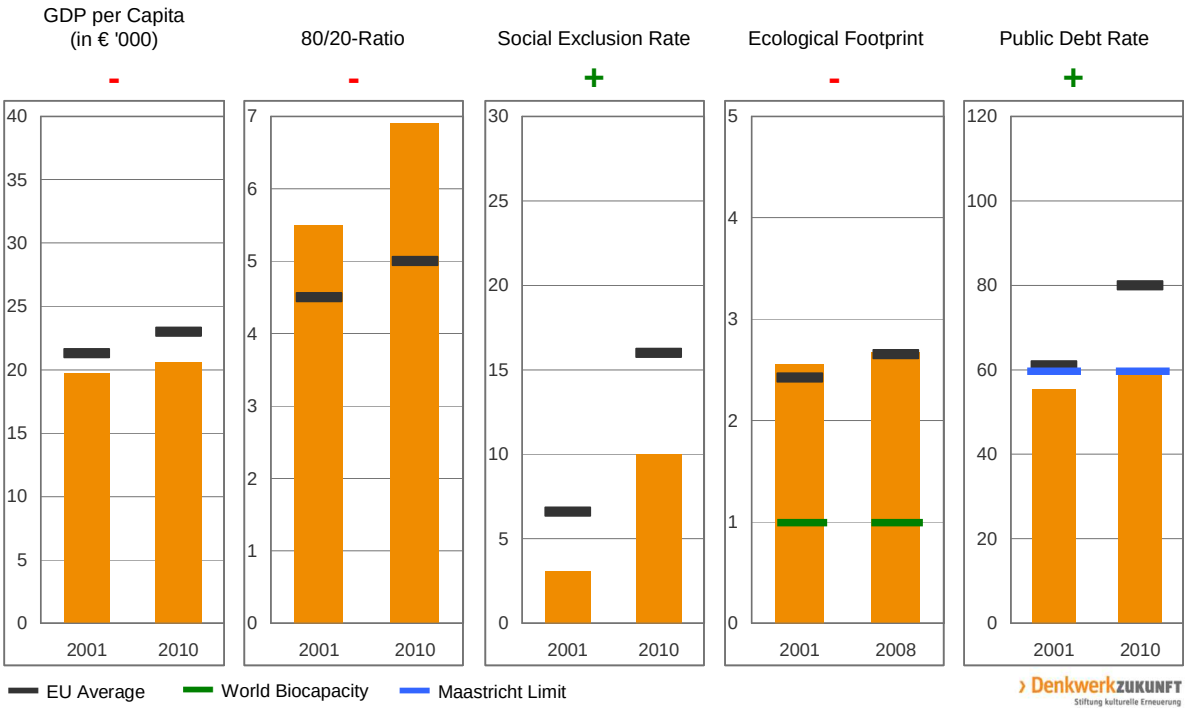

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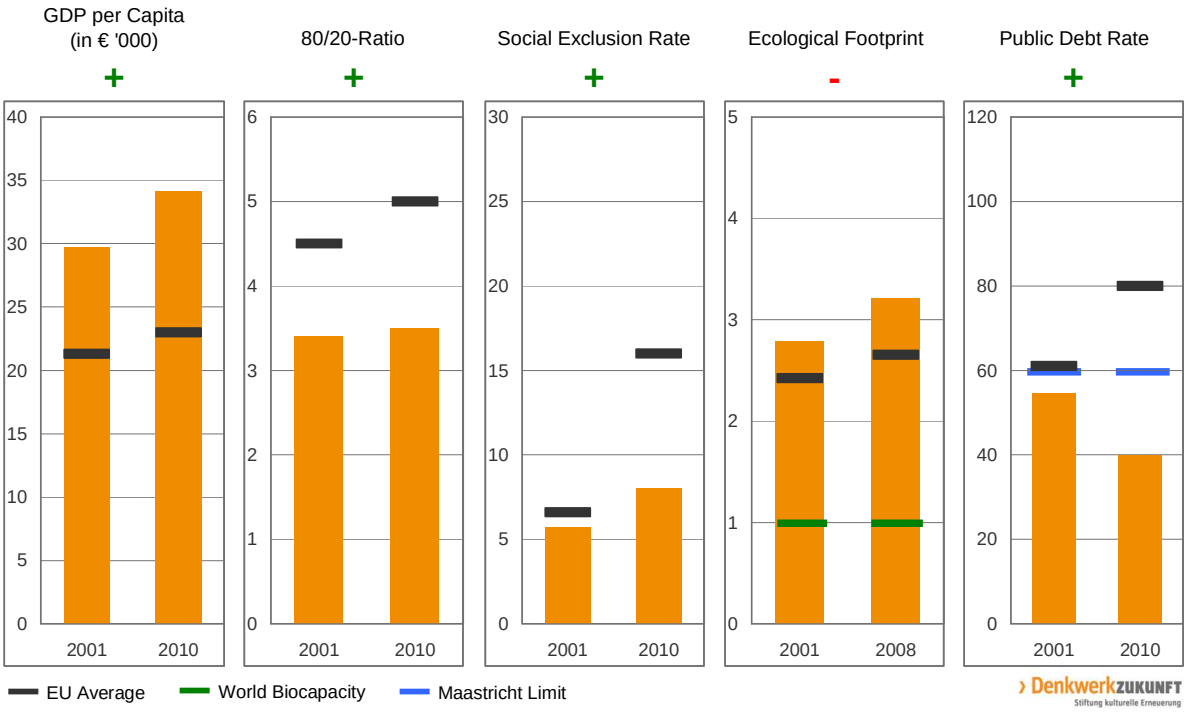
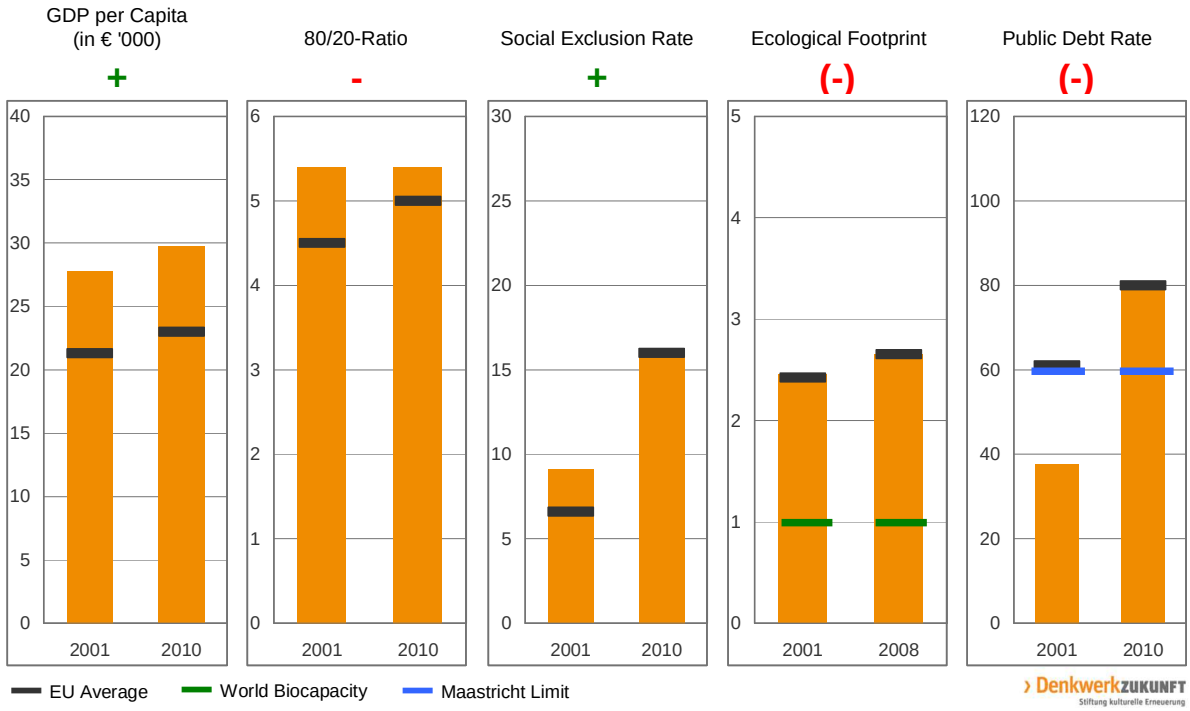


Prosperity Quintet United Kingdom (++)



Sources: Eurostat (2011), European Commission (2019), Gesis (2011), Global Footprint Network (2011)

Annex II: Glossary

80/20 Ratio

The 80/20 ratio is the ratio of disposable income received by the upper 20 percent of the population with the highest income (top quintile) to that received by the 20 percent of the population with the lowest income (lowest quintile). It is calculated based on equivalence-weighted net household income as defined by the OECD standard. Since 2005, data has been collected in the EU SILC (see EU SILC). Older data is based on input from the European Community Household Panel (ECHP) and national data sources. The change in how the data is collected resulted in a lack of data for a series of countries, including Germany, for the years 2002 to 2004.

Composite Indicators

Composite indicators combine several individual indicators deemed representative of certain dimensions of (complex) issues into a single index. This unifies indicators which are measured in differing units such as years, percentage, euros and kilograms. The component indicators are weighted according to their importance in illustrating the situation concerned. Examples of composite indicators used to measure prosperity include the ISP (see Index of Social Progress) and the HDI (see Human Development Index).

Ecological Footprint

The ecological footprint is a sustainability indicator which shows how much bioproductive land and water a country needs each year to produce the goods and services it consumes and to absorb the waste products that arise from the production of those goods and services (waste, greenhouse gas emissions, etc.).

To this end, the ecological footprint combines several natural components into a single index (see Composite Indicators). Bioproductive areas include arable land and meadows used in food, fibre and biofuel production, forests as a source of cellulose and as sinks to bind the carbon emissions that occur when burning coal and oil, and also water surfaces used for fishing.

As a consumption-based indicator, the ecological footprint also takes in areas which are used when a country imports goods and services from other countries. The opposite applies for exports (consumption = production + imports – exports).

If society's ecological footprint exceeds the global renewable biocapacity of the planet's ecosystems within the space of a year, the Earth's stock of natural capital shrinks. Looked at in another way: depending on available technology, there is increasingly less biocapacity available for the production of food, clothing and cars, and for the absorption of the greenhouse gas emissions and waste arising from that production.

If the ecological footprint of a specific country exceeds global biocapacity per capita, it means that if all the people in the world were to lead the same lifestyles as those in that country, more resources would be consumed in a year than the Earth can regenerate within the space of a year.

The ecological footprint and available biocapacity are shown as 'global hectares' (gha). A global hectare represents one hectare of the world's average bioproductivity. By

standardising this average figure, technology and climate-driven differences in regional productivity can be illustrated. Thus, one hectare of arable land in Germany ‘measures’ 2.3 gha. By way of contrast, a hectare of arable land in Zambia measures only 0.5 gha. Through technological and structural advancement, bioproductivity per hectare – and thus its size in global hectares – can be increased.

Equivalised or needs-weighted disposable net household income (OECD Standard)

Net household income takes in all income available to a household from paid employment, assets (including notional income from owner-occupied property), and from private and state transfer-funded services (such as unemployment benefit and pensions) minus direct taxes and social security contributions. To compare people’s incomes irrespective of the size and composition of their households, net household income is divided by the number of people in the household, with these being weighted according to their needs. The head of the household receives a weighting of 1. All other members over 14 years of age receive 0.5, those under 14 get 0.3. Thus, the needs-weighted size of a household comprising two adults and two children would be 2.1 (1 + 0.5 + (2 x 0.3) = 2.1). This takes into account that adults have greater needs than children, and that for each additional person in the household, a lower amount of additional income is needed to maintain the standard of living.

Eurobarometer

Eurobarometer surveys were introduced in 1973 and are conducted in all EU member states at six-month intervals. They are commissioned by the European Commission. The Eurobarometer takes in both standard questions and a separate set of questions that change annually. These focus on issues such as the social situation, health, ethnic minorities, culture, politics and EU institutions.

European Statistics on Income and Living Conditions (EU-SILC)

The EU SILC is a cross-sectional, longitudinal survey coordinated by Eurostat, the EU Office of Statistics. It was introduced in 2005 and is conducted by national statistics offices in all EU member states and also in Norway and Iceland. In Germany, the state (Länder) statistics offices are responsible for the annual surveys, which target some 14,000 households. EU SILC replaced the European Community Household Panel (ECHP), which was responsible for collecting data for the EU15 from 1994 to 2001.

Eurostat Monitoring Report

The Eurostat Monitoring Report (2009) on Sustainable Development in the European Union comprises a collection of indicators that identify one or two key or ‘headline’ indicators for the ten dimensions of prosperity deemed representative of the situation in their respective dimension. ‘Public health’ looks at the number of healthy years of life, while ‘social inclusion’ focuses on the risk of poverty. The report uses a set of 12 key indicators to compare levels of prosperity and its development across Europe:

SDI Theme	Key Indicator
Socioeconomic development	Growth of GDP per capita
Climate change and energy	Greenhouse gas emissions Consumption of renewables
Sustainable transport	Energy consumption of transport relative to GDP
Sustainable consumption and production	Resource productivity
Natural resources	Abundance of common birds Conservation of fish stocks
Public health	Healthy life years
Social inclusion	Risk of poverty
Demographic changes	Employment rate of older workers
Global partnership	Official development assistance
Good governance	No headline indicator

GDP Revisions

GDP revisions are processes which expand the (gross) domestic product calculation. Wealth-increasing components like the estimated value of housework and higher education are added to economic measures like disposable income and consumer spending in private households, wealth-decreasing components like the cost of unemployment, crime, air pollution and the use of resources are substraced. For examples of GDP revisions see the Index of Genuine Progress (GPI) and the National Well-being Index (NWI).

Genuine Progress Indicator (GPI)

The Genuine Progress Indicator (GPI) expands on the traditional domestic product calculation (see GDP Revisions) and is based on consumer spending in private households. The value of housework and higher education are used as wealth-increasing components, while the cost of unemployment, crime, air pollution and the use of resources are seen to decrease wealth. The table below shows the GPI results for the US in 2004.

Contributions Amount (Billions)	
Personal consumption expenditures	*$ 7,588.60*
Weighted personal consumption expenditures (adjusted for inequality)	+ 6,318.41
Value of housework and parenting	+ 2,542.16
Value of higher education	+ 827.98
Value of volunteer work	+ 131.30
Services of consumer durables	+ 743.72
Services of streets and highways	+ 111.55
Net capital investment (positive in 2004, so included in contributions)	+ 388.80
Total positive contributions to the GPI :	*$ 11,063.92*

Deductions Amount (Billions)	
Cost of crime	- $ 34.22
Loss of leisure time	- 401.92
Costs of unemployment and underemployment	- 176.96
Cost of consumer durable purchases	- 1089.91
Cost of commuting	- 522.61
Cost of household pollution abatement	- 21.26
Cost of auto accidents	- 175.18
Cost of water pollution	- 119.72
Cost of air pollution	- 40.05
Cost of noise pollution	- 18.21
Loss of wetlands	- 53.26
Loss of farmland	- 263.86
Loss of primary forest cover	- 50.64
Depletion of non-renewable resources	- 1 761.27
Carbon emissions damage	- 1 182.82
Cost of ozone depletion	- 478.92
Net foreign borrowing (positive in 2004, so included in deductions)	- 254.02
Total negative deductions to the GPI :	*$ 6,644.83*
Genuine Progress Indicator 2004:	***$ 4,419.09***
Gross Domestic Product 2004:	$ 10,760.00

Source: Talberth at al. (2007), p. 5.

Genuine Saving Rate

The World Bank's Genuine Saving Rate, also known as the Adjusted Net Saving Rate, calculates an expanded national net savings rate (see World Bank 2010). Capital depreciation, the cost of environmental pollution and the loss of resources are deducted from gross savings, and expenditure for education is added. The resulting net savings figure is then placed in relation to the gross national income (GNI). If the savings rate is negative, it indicates that a country's capital stock – the sum of material, natural and human capital – is shrinking and is not being managed sustainably (see also Sustainability Indicators).

Gini Coefficient

The Gini coefficient is a distribution indicator. It can assume values between 0 and 1. A value of 0 indicates that all households have the same income (perfect equity), while a value of 1 shows that one household has an income and all others have none (maximum inequity). The Gini coefficient is derived from the Lorenz curve which plots income distribution. It shows how much a given number of households receive from the total income of all households. If the incomes were equally distributed, the Lorenz curve would show a 45° slope. The Gini coefficient is calculated based on the difference between the Lorenz curve and the 45° slope.

Gross Domestic Product (GDP)

Gross domestic product (GDP) measures a country's economic activity. It takes in all goods and services produced domestically in a given year and which are placed on the market for consumption. GDP is calculated as part of the national account system (NAS), which comprises all exchange transactions such as between businesses and households in a given economy.

Human Development Index (HDI)

The Human Development Index (HDI) is a non-monetary composite indicator. It is used by the United Nations to calculate and compare the socio-economic progress of developing countries and emerging economies. As dimensions of prosperity, the HDI looks at life expectancy, educational qualifications and living standards. Each dimension is measured using one or two indicators which are deemed representative. Divided into units like years, percentage and dollars, the indicators are standardised so that they accept values between 0 and 1, where 0 is the minimum and 1 the maximum. Finally, the HDI is calculated as the arithmetic mean of the three sub-indices.

Key Indicators

Key indicators are individual indicators that can be seen as representative of a specific economic, environmental, technological and social situation. For example, the unemployment rate is often used as a key indicator to illustrate the situation on the jobs market, while life expectancy serves as an overall indicator of a society's health. GDP can be seen as a key indicator of a country's (market-based) economic activity. For an example of how key indicators are used to measure prosperity, see Eurostat Monitoring Report.

National Welfare Index (NWI)

Borrowing from the idea of the Genuine Progress Index (GPI), the Federal Environment Agency (UBA) commissioned a National Welfare Index (NWI) for Germany. This is published in two versions. The basic version comprises 21 indicators such as consumer spending in private households as weighted by income distribution, the value of value chain products not transferred via the market, the cost of alcohol and drug abuse, the net change in capital assets and the balance of trade (or net exports). Because the latter two economic indicators are subject to fluctuation and have considerable impact on trends in the NWI, they are not taken into account in a modified version (NWI mod.). This makes the effects of social and ecological indicators clearer.

Public Debt Rate

The public debt rate expresses a country's general government gross debt in relation to GDP. It indicates the extent to which material wealth is achieved 'on tick' and thus by borrowing from the future. The general government gross debt rate is also one of the sustainability indicators used by the European Commission (see Eurostat Monitoring Report). See Eurostat (2011).

Social Exclusion Rate

The social exclusion rate refers to the number of people aged 15 and over among the same age group in the overall population who responded to the Eurobarometer survey question “I feel left out of society” with “strongly agree” or “agree” (see Eurobarometer). To allow its use in international comparison, adjusted figures for the exclusion rate are presented by institutes like the Leibniz Institute for the Social Sciences (Gesis) (2010).

Data for the social exclusion rate was collected in 2001, 2006, 2009 (two surveys) and 2010. Due to marginal changes in the response categories contained in the questionnaires for 2009 and 2010, time series comparison of the data is only possible to a limited extent. In the surveys conducted between 2001 and 2009 (first survey), respondents were presented with six response categories: “Fully agree”, “Agree”, “Does not apply”, “Disagree”, “Fully disagree”, and “Don’t know”. See European Commission (2009b). In the second survey in 2009 and in the survey in 2010, the response category “Does not apply” was removed. See European Commission (2010). This forces respondents to take a stronger stance, which results in a significant increase in the social exclusion rate in some countries. Strictly speaking, this means that only the time series comparisons of the data for 2001 up to the first survey in 2009 and the data in the second survey in 2009 and the 2010 survey are valid.

Socio-Economic Panel (SOEP)

The Socio-Economic Panel (SOEP) is a regularly conducted representative survey in Germany. Introduced in 1984, it is conducted annually by TNS Infratest Sozialforschung on behalf of the German Institute for Economic Research (DIW) in Berlin. The survey targets 20,000 individuals in some 11,000 households throughout the country. The data retrieved gives an insight into issues such as income, employment, education and health. Because the same people are surveyed every year, long-term social and societal trends can be traced.

Subjective measurement of well-being

In the subjective measurement of well-being, people are asked to assess how satisfied they are with their lives in general and with certain areas of life like work, health, household income and the state of the environment. High levels of satisfaction indicate that people are generally happy with their lot. Low levels indicate the opposite. In Germany, subjective data on happiness is used, for example, by the Socio-Economic Panel (SOEP).

Sustainability Indicators

Rather than measuring wealth in terms of flow variables like income and consumer spending, sustainability indicators place the use of stock variables like human, material and natural capital in relation to investments in those variables and their natural regeneration. If a society consumes more than it invests, it chips away at the substance and lives at the expense of future generations. For an example of an environmental sustainability indicator see the ecological footprint. For an example of a more holistic sustainability indicator see the Genuine Saving Rate.

(Weighted) Index of Social Progress (ISP)

The Index of Social Progress (ISP) is a composite indicator which combines 41 individual indicators from ten dimensions – education, health, women's status, military expenditure, industry and income distribution, population, environment, social chaos, cultural diversity and welfare services – into a single index (see also Composite Indicators).

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