

Measuring well-being and sustainability: A special issue of the *Revue de l'OFCE*

By [Eloi Laurent](#)

This issue of the [Revue de l'OFCE \(no. 145, February 2016\)](#) presents some of the best works that are being produced at a rapid clip on indicators of well-being and sustainability.

Why want to measure well-being? Because the idea that economic growth represents human development, in the sense that growth represents a good summary of its various dimensions, is simply false. GDP growth is not a prerequisite for human development; on the contrary, it is now often an impediment (as is illustrated by the exorbitant health costs of air pollution in India and China, two countries that concentrate one-third of the human population).

Achieving growth is not therefore sufficient in itself for human development; there is a need for specific policies that deal directly with education, health, environmental conditions and democratic quality. If the multiple dimensions of well-being are not taken into account, one dimension, typically the economic dimension, is imposed on and crushes the others, mutilating the human development of both individuals and groups (the example of health in the United States is particularly striking in this regard).

Why want to measure sustainability? Because today's global growth rate of 5% is of little importance if the climate, the ecosystems, the water and air that underpin our well-being have irrevocably deteriorated in two or three decades due to the means deployed to achieve that growth. Or to put it in the words of the Chinese Minister of the Environment, Zhou Shengxian, in 2011: "If our land is ravaged and our health

destroyed, what benefit does our growth bring?" We need to update our understanding of well-being so that it is not a mirage. Our economic and political systems exist only because they are underpinned by a set of resources that make up the biosphere, whose vitality is the condition for the perpetuation of these systems. To put it bluntly, if ecological crises are not measured and controlled, they will eventually do away with human welfare.

Indicators of well-being and sustainability must therefore enter a new, performative age: after measuring in order to understand, we now need to measure in order to make change – to evaluate in order to evolve. Because the change called for by these new visions of the global economy is considerable. This time of action invariably involves choices and trade-offs that are far from simple. This underscores the dual purpose of this issue of the *Revue de l'OFCE*: to show that indicators of well-being and sustainability have reached maturity and that they now can change not only our vision of the economic world but also the economic world itself; they can make clear the types of choices available to public and private decision-makers so as to carry out the change needed. In this respect the two sections of this special issue clearly highlight the issue of the relevant scale for measuring well-being and sustainability.

The first part of this issue is devoted to the relatively new topic of measuring regional well-being in France. Measuring well-being where it is actually lived presupposes moving down the scale to the local level: the need to measure and improve human well-being as close as possible to people's lived reality, along with the scale of spatial inequalities in contemporary France, demands a territorial perspective. There are at least two good reasons why territories (regions, cities, *départements*, towns), more than nation-states, are the vectors of choice for the transition towards well-being and sustainability. The first is that they have grown in

importance due to the impact of globalization and urbanization. The second is their capacity for social innovation. Following on from the late Elinor Ostrom, we talk about a “polycentric transition” to mean that each level of government can seize on the well-being and sustainability transition without waiting for a push from the top.

Monica Brezzi Luiz de Mello and Eloi Laurent (“Beyond GDP, beneath GDP: Measuring regional well-being in the OECD” – *all OFCE Revue articles in French*) gives the initial results of the theoretical and empirical work currently underway in the OECD framework (interactive access on the site <http://www.oecdregionalwellbeing.org/>) that measures certain dimensions of well-being at the regional level and applies these new indicators to the French case in order to draw useful lessons for public policy.

Robert Reynard (“Quality of life in the French regions”) provides an overview of recent findings by the INSEE using regional quality-of-life indicators. These can be used to develop a new typology of French spaces, highlighting eight major types of territories, which are distinguished both by the living conditions of their inhabitants (employment, income, health, education, etc.) and the amenities that these areas provide for their people (living environment, access to services, transport, etc.). The new representation of France that emerges constitutes a valuable decision-making tool for those in charge of policies aimed at promoting equality between the regions.

Kim Antunez, Louise Haran and Vivien Roussez (“Diagnoses of quality of life: Taking into account people’s preferences”) looks back at the approach developed by France’s regional monitoring body (*Observatoire des territoires*) and highlights indicators, offered at appropriate geographical scales, that can be used to account for the multidimensional character of quality of life in France. Here too, regional typologies explore the link between the diverse amenities in people’s

environments and the diverse aspirations of the people who live in them, so as to highlight the imbalances that exist and the public policy levers that can be used to reduce these.

Finally, Florence Jany-Catrice (“Measuring regional well-being: Working *on* or *with* the regions?”) discusses a fundamental aspect of the debate about measuring well-being in the French regions: the participation of citizens in defining their own well-being. She shows in particular that the impact of the indicators depends on whether those who develop them work on the regions or with them – it is only in the latter case that the region and its inhabitants become active players in the development of a common vision.

But, in contrast to these localized approaches, the measurement of sustainability requires moving up the geographical scale to the national or even global level. This is the subject of the articles in the second part of this issue, which deal with a subject whose importance has been emphasized by the recent law on the energy transition: the circular economy. Here there is a crucial difference to be made between a seemingly circular economy, which concerns a product or business, and genuine economic circularity, which can be understood only by enlarging the loop to develop a systemic vision.

This is what Christian Arnsperger and Dominique Bourg aim to demonstrate (“Towards a truly circular economy: Reflections on the foundations of an indicator of circularity”) by examining the main issues and questions that designers of an indicator of a truly circular economy would need to take into account, if it were ever to be developed formally and technically. They conclude in particular that without a systemic vision oriented towards the reduction, rationing and stationarity intrinsic to the permaculture approach, the notion of the circular economy will forever remain vulnerable to misuse that, however well intentioned, is ultimately short-sighted.

Vincent Aurez and Laurent Georgeault (“Indicators of the circular economy in China”) attempt to assess the relevance and the actual scope of the assessment tools developed in recent years by China to flesh out an integrated circular economy policy that aims at ensuring the transition to a low-carbon model with a restrained use of resources. These instruments, which in many respects are unique, but still inadequate, are distinguished by their systemic and multidimensional character, and therefore constitute an original contribution to the field of sustainability indicators.

Finally, Stephan Kampelmann (“Measuring the circular economy at the regional level: A systemic analysis of the management of organic matter in Brussels”) draws on the theory of social-ecological systems to carry out a particularly innovative exercise. He uses a battery of indicators to compare the economic, social and environmental impact of two possible pathways for the municipal management of flows of organic matter in Brussels: a centralized treatment using anaerobic digestion, and a process based on decentralized composting.

Thus while well-being is best measured at the local level, to assess sustainability properly, including at the regional level, the impact felt beyond local and national borders has to be taken into account. The trade-offs between these dimensions, including the exploration and possible transformation into synergies at regional and national levels, then turn out to be the most promising projects opened up by the welfare and sustainability transition.

Oil: carbon for growth

By [Céline Antonin](#), [Bruno Ducoudré](#), Hervé Péléraux, Christine Riffart, [Aurélien Saussay](#)

This text is based on the [special study of the same name](#) [Pétrole : du carbone pour la croissance, in French] that accompanies the OFCE's 2015-2016 Forecast for the euro zone and the rest of the world.

The 50% fall in the price of Brent between summer 2014 and January 2015 and its continuing low level over the following months is good news for oil-importing economies. In a context of weak growth, this has resulted in a transfer of wealth to the benefit of the net importing countries through the trade balance, which is stimulating growth and fuelling a recovery. Lower oil prices are boosting household purchasing power and driving a rise in consumption and investment in a context where companies' production costs are down. This has stimulated exports, with the additional demand from other oil-importing economies more than offsetting the slowdown seen in the exporting economies.

That said, the fall in oil prices is not neutral for the environment. Indeed, the fall in oil prices is making low-carbon transportation and production systems less attractive and could well hold back the much-needed energy transition and the reduction of greenhouse gas emissions (GHG).

This oil counter-shock will have a favourable impact on growth in the net oil-importing countries only if it is sustained. By 2016, the excess supply in the oil market, which has fuelled by the past development of shale oil production in the United States and OPEC's laissez-faire policy, will taper off. Unconventional oil production in the United States, whose profitability is uncertain at prices of under 60 dollars per barrel, will have to adjust to lower prices, but the tapering

off expected from the second half of 2015 will not be sufficient to bring prices down to their pre-shock level. Brent crude prices could stay at about 55 dollars a barrel before beginning towards end 2015 to rise to 65 dollars a year later. Prices should therefore remain below the levels of 2013 and early 2014, and despite the expected upward trend the short-term impact on growth will remain positive.

To measure the impact of this shock on the French economy, we have used two macroeconomic models, *e-mod.fr* and *ThreeMe*, to carry out a series of simulations. These models also allow us to assess the macroeconomic impact, the transfers in activity from one sector to another, and the environmental impact of the increased consumption of hydrocarbons. The results are presented in detail in the [special study](#). It turns out that for the French economy a 20 dollar fall in oil prices leads to additional growth of 0.2 GDP point in the first year and 0.1 point in the second, but this is accompanied by a significant environmental cost. After five years, the price fall would lead to additional GHG emissions of 2.94 MtCO₂, or nearly 1% of France's total emissions in 2013. This volume for France represents nearly 4% of [Europe's goal](#) of reducing emissions by 20% from 1990 levels.

The simulations using the French *e-mod.fr* model can be extended to the major developed economies (Germany, Italy, Spain, the USA and UK) by adapting it to suit characteristics for the consumption, import and production of oil. With the exception of the United States, the oil counter-shock has a substantial positive impact that is relatively similar for all the countries, with Spain benefitting just a little more because of its higher oil intensity. Ultimately, considering the past and projected changes in oil prices (at constant exchange rates), the additional growth expected on average in the major euro zone countries would be 0.6 GDP point in 2015 and 0.1 point in 2016. In the US, the positive impact would be partially offset by the crisis that is hitting the

unconventional oil production business^[1]. The impact on GDP would be positive in 2015 (+0.3 point) and negative in 2016 (-0.2 point). While lower oil prices are having a positive impact on global economic growth, this is unfortunately not the case for the environment ...

^[1] See the post, [The US economy at a standstill in Q1 2015 : the impact of shale oil](#), by Aurélien Saussay, from 29 April on the OFCE site.

Tales from EDF

By [Evens Salies^a](#)

The challenge facing policy-making on the reduction of greenhouse gas emissions is not just environmental. It is also necessary to [stimulate innovation, a factor in economic growth](#). Measures to improve energy efficiency [\[1\]](#) demand high levels of investment to transform the electricity network into a [smart grid](#). To this end, EU Member States have until 2020 to replace the meters of at least 80% of their customers in the residential and commercial sectors with “smarter” meters. In France, these two sectors account for 99% of the sites connected to the low-voltage grid (< 36 kVA), or about 43% of electricity consumption and nearly 25% of greenhouse gas emissions (without taking into account emissions from the production of the electrical power that supplies these sites).

These new meters have features which, as has been shown by research, lead to lower energy consumption. The [remote reading](#) at 10 minute intervals of data on consumption, which is transmitted in real time to a remote display (a computer screen, etc.), immediately shows the savings in electricity, which, with two surveys per year, was previously impossible. High-frequency remote reading also makes it possible to expand the range of vendor contracts to include rates that are better suited to customers' actual consumption profiles. The "pilot" flying the transmission network can better optimize the balance between demand and a supply system that has fragmented due to the growing number of small independent producers. For distributors [\[2\]](#), remote reading solves the problem of gaining access to meters [\[3\]](#).

These features are supposed to create the conditions for the emergence of a market for demand-side management (DSM) that is complementary to the supply market. This market would give non-traditional [suppliers](#) an opportunity to differentiate themselves further by offering services that are tailored to the needs of the DSM customer [\[4\]](#). This could lead to significant gains in innovation if other companies that specialize in information and communication technology also develop software applications that are adapted to the use of the smart meters. However, in France, the policy on the roll-out of smart meters does not seem to be facilitating greater competition. Innovation could stop at the meter due to a [decision](#) by the French Regulatory Commission (CRE) which states that:

"The features of advanced metering systems must strictly meet the missions of the electricity [distributors] ... Thus the additional features requested by some stakeholders [essentially suppliers] which are subject to competition (basically remote displays) are not accepted."

A reading of this paragraph would seem to indicate that the suppliers are not willing to bear the cost of developing these

features. However, according to Article 4 of this decision, which specifies the list of features for distributors, none of them seems to have been left exclusively to the competitive sector. In practice, households with a computer can check their consumption data without going through their provider or a third party.

It is worth considering the costs and benefits of such an approach, which *a priori* would seem to amount to the monopolization of the DSM market by the distributors.

This approach will make it possible to quickly reach the goal of 80%, since the CRE has opted for a public DSM service: the distributors, who have public service obligations, will roll out the smart meters. The “Linky” meter alone, from the dominant electricity distributor, the ERDF, will be installed on 35 million low-voltage sites, covering 95% of the national distribution network [5]. There is thus little risk of under-investment in the demand-response capacity that electricity suppliers will soon have. In fact, as the suppliers do not have to bear the costs of the manufacture and deployment of the meters, they can quickly invest in the development of these capabilities. In addition, the equalization of subcontracting costs for the manufacturing of the meters and their installation throughout the French distribution network will make for considerable economies of scale. Finally, the low rate of penetration of meters in countries that have opted for a decentralized approach (the cost of the meter and services are then borne partly by the households concerned) argues in favour of the French model. This model is more practical since it removes most of the barriers to adoption.

Despite this, the degree of concentration in the business of the distribution and supply of electricity to households raises questions: ERDF is affiliated with EDF and has a virtual monopoly on the supply of electricity to households. In terms of innovations in DSM services, it would seem that EDF has little reason to go beyond its subsidiary’s Linky

project – first, because of the costs already incurred by the Group (at least five billion euros), and second, because the quality of the default basic information mechanism in Linky will be sufficient to lead to a cost for migrating to DSM services offered by competitors. [\[6\]](#) Alternative suppliers will of course be able to introduce innovative tariffs. But so will EDF. One way to overcome this problem would be to set up a Linky platform so that other companies' applications could interact with its operating system. With the agreement of the household and possibly a charge for access to the data, the business would of course be regulated, but entry would be free. This would stimulate innovation in DSM services, but would not increase competition since these companies would not be electricity suppliers. Would the consumer have a lot to lose? This would obviously depend on the amount of the reduction in their bills. Given that the price of electricity is likely to rise by 30% by 2017 (including inflation), we are worried that consumers' efforts to optimize their consumption will not be rewarded. The net gain in the medium term could be negative.

Finally, we can ask ourselves whether with Linky the EDF group is not trying to reinforce its position as the dominant company in the supply of electricity, a position that has grown weaker since the introduction of competition. With DSM service installed by default on 95% of the country's low-voltage sites, Linky will become an element in the network infrastructure that all DSM service providers will have to use. From the point of view of the rules on competition, one must then ask whether ERDF and its partners have properly communicated information about the Linky operating system, without any favouritism being shown to the EDF Group and its subsidiaries (Edelia, NetSeenergy). The story tellers would like to tell us a beautiful tale about encouraging innovation in energy and the digital economy in order to deal with the ecological transition. Knowing that the current CEO of the company in charge of the architecture of the Linky information

system, Atos, was Minister of the Economy and Finance just prior to the launch of the Linky project in 2007, there seems to be room for doubt ...

[1] “Energy efficiency improvement” and “energy savings” are used interchangeably in this post. For precise definitions, see Article 2 of Directive [2012/27/EU](#) of the European Parliament and of the Council.

[2] The distributors manage low and medium-voltage lines. [ERDF](#) has the largest network. The networks and meters are licensed equipment, which are the property of the local public authorities.

[3] This would nevertheless involve, for example for ERDF, the elimination of 5000 jobs (compared with 5900 retirements, see Senate Report no. 667, 2012, Vol. II, p. 294).

[4] In accordance with the NOME law of 2010, suppliers and other operators must be able to make ad hoc reductions in the consumption of electricity for certain customers (temporarily cut the supply to an electric boiler, etc.), which is called demand-response load-shedding.

[5] In areas where the ERDF is not a supplier, other experiments exist, such as that of the distributor SRD in Vienna, which has installed its smart meter, i-Ouate, on 130,000 sites.

[6] See the document by the DGEC, 2013, the Working group on smart electricity meters (GTCEC) – [Coordination document](#), February [in French].

The author would like to thank C. Blot, K. Chakir, S. Levasseur, L. Nesta, F. Saraceno, and especially O. Brie, M.-K. Codognet and M. Deschamps. The opinions expressed in this

post are those of the author alone.