



Measuring the Immeasurable

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Simon Bell:

Since the beginning of time, human beings have seen the need to measure things. How else do we know how we're doing?! So, we set ourselves targets, we give ourselves boundaries, we measure our performance. From the number of calories we can healthily consume in a day, to the number of cars needed on the M25 to constitute a traffic jam, to the worldwide measurement of our economy, GDP....these man-made measurements are known as indicators.....and there are millions and millions of them out there

I'm Dr Simon Bell from the Open University and Bayswater Institute and I'm here to investigate how we use indicators within the EU....who decides how we measure things and what are the implications for every one of us....?

Vox Pops:

- All of us, use indicators every day of our lives.
 - Many of them have to do with the negative impact – the pollution, the accidents.
 - Policy does tend to listen more to the economic indicators than the environmental indicators
 - After several days losing hundreds of millions of pounds a day the airline industry was desperate to get flying again, they had to invent a new rule
- Policy should not be totally driven by indicators....they're there as a support tool

Simon:

Let's start at the beginning...what are indicators? I met up with expert on indicators from the University of Surrey, Steve Morse, to find out more:

Stephen:

Indicators are a way of trying to represent something complex in something simple, so a blue sky is an indicator of nice day. So they are just basically tools

Simon:

And why do we use indicators, what's the point?

Stephen:

Because we live in a complex world. We need to make sense on a day by day basis to make sense of the place in which we live and so all of us use indicators in every day of our lives.

Simon:

Can you give me a nice example of an indicator?

Stephen:

A classic example is GDP – GDP was developed some years ago, essentially following the crash, the 1930s, the recession, and people realised they didn't have enough information on how economies were created. So you had the recession happening, what was happening, how to manage it, how to tell if it was going to happen again and so a whole set of what's called national accounts came into play and GDP is just one of those indicators that was developed at that time. It's an economic indicator, it measures the flow of money within the economy and high GDP is good, low GDP is bad.

Simon:

So, an indicator is a measurement to help us to simplify and understand our complex world. But an indicator like GDP is in fact quite complicated – it's a composite indicator – a measurement pulling together a whole basketful of other measurements which together help us to define the state of our economies.

Now, in this modern age, we've developed so many indicators that we're having to ask ourselves, what exactly are we measuring? For example, is GDP the only or the best way to measure a country's wealth? Stephen Morse again

Stephen:

One of the classic criticisms of GDP as an indicator is that it is relatively simplistic in terms of its message and so you can get politicians managing economy in terms of wealth and GDP without thinking through other things such as quality of life, which is more than just wealth, environmental quality, which is more than just wealth....And the whole beyond GDP debate which is in vogue in Europe, is about trying to get us to value things beyond simple economic measures.

Simon:

interesting point here between an indicator and truth. There's a lot of people would say this: an indicator says this and therefore we must do this. It's not as simple as that is it?

Stephen:

Yes, because whose truth? Your truth is not necessarily my truth. Truth is a relative term. So indicators are also relative devices.

Simon:

Now that's a really important point isn't it, so indicators can be manipulated depending upon your point of view and if you have the power to adjust it or maybe say let's not use that indicator, let's use that one" Can you give me an example?

Probably the classic example in recent times is the creation of the Environmental Sustainability index. ESI was created by the World Economic forum and they paid some universities in the States to develop ESI and they chose to put certain things in it. E.g.: expenditure on science, a lot of things which developed countries do very well on. So the ESI ended up showing that the most sustainable countries are Europe, the USA and the countries with the lowest values were Africa, Asia and so on. Because ESI was very much linked to expenditure on things

Now this was heavily criticised by a whole range of groups who said that this was massively unfair because they'd created an index that biases in favour of the developed world and against less developed world. And what Greenpeace and others did was say, ok, we can create another version of the ESI which is based upon pollution of water and air and we can prioritise those issues and lo and behold, Europe and N America come out bottom. So this is a classic example of how you can, through careful choice of what you can include in an index, you can pretty much show what you like

Simon:

We've almost got a situation of indicator wars, where different groups who produce their own indicators, and they'll bombard the public and the policy Indicator wars amongst pressure groups!

Stephen:

The problem is that the way in which indicators can be presented can give a semblance of being very objective, because they're often numerical, they're often derived through very complicated methodologies, fairly complex manipulations of variables of data so you can create an image of an indicator being very hard, very objective, very scientific, and most people would accept that, if the experts say this is the indicator we should be using, that's what we should be using. But the reality I'm afraid is different.

Simon:

So, we've seen how indicators can affect decision making and perceptions and can be used and manipulated to back up your cause. But who produces these indicators and what's their mindset? Dr Ian Perry works for DG Research in the European Commission – he has a keen interest in how indicators are produced and used by EU policy makers....

Ian Perry:

The commission since the late 1980s has funded a considerable amount of research on indicators and official statistics. And some of the most important new indicators which have come into use over the last 20 years have been derived from something which was originally a research project.

Simon:

Ok, there's a whole industry researching and producing indicators for use within the EU and around the world. From EU funded research programmes, to companies like Eurostat, indicators are being churned out - and, according to Ian Perry, there's a vast appetite for them

Ian:

We live in a world where there is ever more demand for good indicators by politicians, policy makers, and both the general and specialised public. Production of indicators is very dependant on the availability of good statistics and these cost money, they need to be produced by good methodologies.

Simon:

What would you say are the main benefits of a well organised indicator world where we have lots of indicators to be gathered and are available for policy makers?

Ian:

Hopefully, better evidence based policy. Indicators need to be produced fairly quickly, they need to have a certain accuracy. We, of course, at a European level need them to be comparable between the different countries. They need to be disaggregated down to useful levels eg; regional information or you might need per industry...you might want to break them down per age group or gender – if you don't have a very systematic system you can't guarantee that good things will be produced.

Simon:

so good policy at European level is to some extent dependant upon good indicator collection and use?

Ian:

Yes I would say that's the case, to some extent policy should not be totally driven by indicators. They're there as a support tool

Simon:

So, every day we're developing thousands, if not millions of indicators to measure our progress or to support European policy making. But do all people need the same kind of information to make good policy decisions. Let's look at how some indicators are actually used within EU member states. First up, a long term member of the EU, Denmark – what role do transport indicators play within the country?

Henrik:

They play several roles. From everyday measurements of conditions on the road network to more long-term issues like where will the transport system be in 30 or 50 years from now in terms of environmental performance, economic issues and a lot of other issues

Simon:

Henrik Gudmunssen from the Technical University of Denmark works in transport research and comes across indicators every day:

Henrik:

Many have to do with the negative impact of transport, the pollution, the accidents....all the things we don't like about transport. It's very important to collect that information and see if we're heading in the right or wrong direction. To many people the most important thing is how much time they have to waste on transport - so things like delays and punctuality are critical indicators for trains and buses. But also delays on the motorway network. Almost everyone in the transport sector would consider safety as one of the primary concern and it's an area

where there are many good indicators. The most important one is your life – or the number of fatalities, people killed in transport – it's the one that generates the most interest of all the indicators that exist.

Simon:

Ok, so do any of these indicators have any influence on policy in Denmark? Are the politicians sensitive to the indicators? Henrik Gudmunsson again

Henrik:

Some would say they're not sensitive enough because politicians have decided that we'll get rid of as many of those accidents as possible, we have targets for that and progress has not been as quick as expected, which means people are holding the politicians accountable for that. There is a committee in parliament whose sole job is to follow traffic safety issues and to respond if the safety indicators show us that we're moving in the right direction or not. But there's a big benefit to the public debate about transport that there are indicators available. If we didn't have indicators that people could trust then all the time we would have to struggle as to what's the truth, what's up and what's down, what's fast and what's slow. Thanks to indicators we have a better informed debate on what we want. If the politicians have promised that they're going to reduce accidents by 20% and they don't, then we can have an informed public debate

Simon:

Hmm This sounds very grounded and reasonable, but how are indicators experienced in places further from the EU centre ... for example a small member state like Malta? Liz Conrad, from the University of Malta, has carried out research into how the country uses environmental sustainability indicators.....

Liz Conrad:

Our general conclusions were that there isn't a lot of use of indicators and there have been several initiatives to develop indicators which unfortunately don't seem to have much influence in terms of policy. They tend to be completed, data is gathered for a number of years and then it all dies out. So, I don't think in the case of Malta that there is that much use of indicators, that's the one conclusion that stood out

Simon:

So, Maltese policy makers aren't taking much notice of the indicators they have at hand. But what about when there's an EU directive that Malta is supposed to meet, say for example in terms of sustainability? They have to take notice of these indicators don't they? Liz Conrad again.

Liz:

Policy does tend to listen more to the economic indicators than the environmental indicators. The environmental indicators are monitored with much less regularity than the economic indicators and I do suspect that they have much less influence as well. The environmental indicators are used more to show compliance or non compliance with EU standards and regulations, but they're not really used for any adaptive management purposes, to influence policy.

There is quite a lot of criticism from policy makers about the resources that go into measuring these indicators, because there is a feeling that, Malta being a small island state, it's a different context and the European indicators don't necessarily have the same utility for Malta as they do within the European mainland. And there is a feeling that they're wasting a lot of their resources trying to fit our national data into the European framework when they really don't help much in terms of management.

Simon:

So not all indicators are good for all people and economics tend to rule in the indicator business In short, the use of indicators is not problem free.

Let's think how indicators have been used or even misused in recent history. Who can forget the problems caused by the recent volcanic eruption in Iceland? As Europe was shrouded in a cloud of ash.....all flights were grounded....for days.

Dave Rothery:

it's been known since some near fatal incidents in 80s that if you fly a jet aircraft through a volcanic ash cloud and the ash gets into the engine, you can lose your engines

Simon:

Dave Rothery is a volcanologist here at the Open University.

Dave:

so the rule agreed in the 1980s was that if you know there's ash present you should not fly through it. So the indicator was simply if there's volcanic ash present do not fly through it. So what happened in Iceland was that the wind was blowing ash over Europe at such a height that if you wanted to take off from Europe you had to pass through it, if you wanted to land in Europe you had to descend through the ash. And because the rule was if there's ash present you mustn't fly, then no flights were allowed. So we lost 6 days of flying. Now, volcanologists have been warning of a possible ash eruption from Iceland for decades. The airline industry pretty much had its head in the sand and the engine manufacturers declined to declare what the safe tolerance was. After several days losing millions of pounds a day every day, the airline industry was pretty frantic and desperate to get flying again.... they had to invent a new rule.

Hazel Rymer:

A lot of this was largely driven by economic factors, that was what caused these changes to happen

Simon:

Hazel Rymer is an environmental geophysicist at the OU...

Hazel:

As the economic impact became more significant people began to look at what was really likely to be going on in terms of the ash

Dave:

They did a few test flights and they did some experiments in labs and at end of it people came out and agreed that 2mg of ash per cubic meter was safe to fly through, that was agreed as the tolerance limit. It took 6 days so therefore it immediately became safe to fly through the ash cloud.

Simon:

So, in the case of the Ash Cloud, a combination of economic and probably political pressure meant that the indicator that judged safe flying was changed very very quickly. Hazel Rymer again....

Hazel:

You can't rush science, you can't rush the new modelling. You can collect more data but that doesn't necessarily make it good data and what you do with it is critically important. And developing a realistic model is not usually done overnight. There was a lot of frustration amongst volcanologists that it wasn't a surprise that an Icelandic volcano went off, it wasn't a surprise that there was ash up there – it took an economic crisis for there to be any recognition that these models were required and for some resource to be thrown at the problem. It was rather little and extraordinarily late!

Simon:

Hmm. We get a picture that indicators can be very fluid. We can see from the ash cloud experience, that indicators can be changed for convenience in times of strife and of the key point - that indicators are not necessarily 'true' or 'right'.

Simon:

What lessons can we learn from our study of indicators?

Well, firstly, it seems that we need to get away from ideas that indicators are absolute or 'true' but rather, they are the best we have! We should see them as guides to the way we think – not something to ignore but nor something we should rely on completely either.

Secondly: They need to be questioned and argued over. Indicator supply and demand often don't seem to come together. So we need people to be wise to indicators. Where citizens feel able to question the indicators and argue the toss for changes.

Pia Fredriksson:

The Point Project is basically about indicators - but about how indicators are used in policy and how they influence policy

Simon:

Pia Frederikson from Aarhus University in Denmark runs the EU funded project 'Policy Influence of Indicators' or POINT for short. One of their key findings has been the importance of involving the users, the stakeholders, in the understanding and even creation of indicators.

Pia:

All indicators don't necessarily have to be understood by general public, because they're not meant for the general public. Some do – the ones coming out into the media that say something that everyone needs to understand. But they do need to be understood by a more narrow group of stakeholders. Especially the politicians because they are policy makers....but also the NGOs and the associations who are really engaged in the policy process. They need to in both understanding the indicators and in the indicator production.

Simon:

How might POINT help the stakeholders to understand indicators more fully or make better use of them?

Pia:

The main issue is the necessity to involve the stakeholders at an early stage in policy making. Eg: I could mention one study of policy on aquatic environment in Denmark where there was an involvement of many types of stakeholders in the policy negotiation process – NGOs, farmers associations, government officials. And they sat around the table and tried to find out what are the main measures in order to reduce nitrogen emissions in agriculture production. And a kind of consensus was arrived amongst this very broad group - the type of targets and measures they kind agree about. They don't agree about the level of stress of targets. But having a general idea of how things are related to each other is very important for attaching indicators to these issues afterwards to follow the policies.

Simon:

and here we have the nub of the indicator issue .. people. People develop indicators for people to use .. the problem seems to be that people like you and I rarely seem conscious of the power and influence of indicators or what they are doing to our world

Stephen Morse:

These aren't things that sit over in some distant technocratic bureaucracy over in Brussels, these things are here now, they're right next to you – you consume indicators every day, you are bombarded with indicators every day. Whether you think it or not....you are.