The Foundation for Science and Technology
Debate Record Note

Is the rate of change of GDP the best way to measure economic growth?

Date and Location: 23rd May, 2018 at The Royal Society

Chair: The Earl of Selborne GBE FRS
Chair, The Foundation for Science and Technology

Speakers: Professor Jonathan Haskel
Professor of Economics, Imperial College Business School
John Pullinger CB
UK National Statistician, Head of the Government Statistical Service and Chief Executive
Tera Allas
Senior Fellow and Director of Research, McKinsey Center for Government

Panellists: Clare Lombardelli
Director General and Chief Economic Adviser, HM Treasury
Professor Martin Weale CBE
Professor of Economics, Department of Political Economy, King's College London
Professor John Kay CBE FRSE FBA
Economist

Sponsors: Cranfield University, the ERA Foundation and the McLaren Technology Group Ltd

Audio Files: www.foundation.org.uk

Hash tag: #fstgdp

PROFESSOR HASKEL said that GDP was probably the most written about economic indicator in history, attracting both strong supporters and detractors. His view was that we should not throw it away but keep its desirable features and improve it. His talk set out what the desirable features were and what improvements he would recommend. He started by highlighting just two of the problems of trying to quantify output in an economy e.g. what weights do you use when trying to add together different factors (the "apples and pears" problem) and the problems of avoiding double counting between sectors (especially with "Intermediate goods").

He gave examples of two widely used indicators using different weighting methods. The first, the Human Development Index was the equivalent of taking the geometric mean of the factors. The second- The EU Innovation Scoreboard - used the simple arithmetic mean. He felt that neither of these worked correctly. In terms of improving GDP, he suggested building on its existing strengths and proposed two areas of improvements. One on using meaningful weights (where he proposed prices), the second being removal of double counting (subtracting out "intermediate goods").

He set out some of the issues these raised including on the latter, how do you define an intermediate good? What about intangible assets? On the former, problems included how to incorporate the value of free goods (e.g. Facebook, Google Maps), how to account for quality differences in prices and how to include

things currently without prices at the "production/ non-production boundary" (his example was doing your own vacuum cleaning or paying others to do it for you!).

He concluded by suggesting that we needed to accept the need for a variety of different indicators (in addition to GDP) – the "Dashboard" approach, perhaps leaving it to the user to decide on the weightings to give to each ("privatising" the question of weighting).

JOHN PULLINGER focussed his discussion on the questions of how we define the factors we want to measure, and how do we define an agreed and reproducible "value" to these when many are not simple economic measures? He started by asking what we mean by "economic growth". He prefers to measure prosperity rather than growth. What we are interested in knowing are not just things like Britain's place in the world or the success of our industrial strategy, but equality, the sustainability of prosperity etc.

A test for GDP is how well it compares against these measures, and historically it is a good and consistent measure of those factors it includes, allowing analysis by country and subgrouping etc. but it omits important factors like environmental degradation, equality, the digital economy etc. Where GDP fails is when the questions asked of it are political or social.

He went on to highlight some of the things that would make GDP better, starting by noting that it is a very retrospective indicator looking at yesterday's economy and only slowly updated as the economy changes. The last revision was in 2008. Specific features he mentioned included how do you measure value created by IP, intangible assets and R&D and incorporate all of these into a single measure - GDP? Further the digital revolution has changed the way markets work, for instance how is the value an of a free App incorporated into GDP? Also, surely the wider economic contributions of the public sector, housing and justice should be incorporated?

Finally, and to his mind the most intellectually challenging problem, was to define "price" at market boundaries. How do we understand what it is? He then set out some views on how we should complement GDP with "satellite" measures. These included natural capital, household capital, welfare, wellbeing, inequality and sustainable development. These should form a dashboard of indicators which could be used to help advise policy and social decisions, but he emphasised that these should be developed and agreed internationally, be innovative and forward looking. He specifically identified measure of inequality as a priority.

TERA ALLAS spoke about the value of GDP as a measure of economic growth, highlighting at the outset that despite its drawbacks, GDP is a useful aggregate indicator and that the problem is when it is misused by decision makers or the media. Whilst agreeing that we needed to modernise GDP to account for the changing features of modern economies, she felt it should not be replaced, but rather complemented by other indicators (the "Dashboard" approach previously mentioned).

She argued that an improvement in measured GDP is not necessarily "good", and to illustrate this, structured her discussion around four headings: (a) "Good things missing from measured GDP (e.g. consumer surplus, health, wellbeing and happiness), (b) "Bad" things missing from measured GDP (e.g. pollution, inequality), (c) "bad" things that can increase GDP (e.g. unsustainable resource use, war), (d) "Good" things that can reduce GDP (lower prices, personal value of self-services).

In discussing these factors, she emphasised the fact that GDP does not directly capture changes in people's wellbeing (simplified for the purposes of this discussion under four headings of "Health", "Employment Status", "Relationship Status" and "Age"). However, GDP per head does correlate with health outcomes. She highlighted some of the problems of how as a single averaged indicator, GDP can mask important factors like inequalities of wealth distribution. In respect of modernising GDP, she indicated two specific areas where change was needed.

First, manufacturing is overrepresented in the GDP statistics (a largely historical problem relating to the origins of GDP definitions post WW2). Secondly, the need to incorporate the modern economic value of data and its uses. She highlighted a recent McKinsey analysis which showed that data flows across countries had a greater effect on GDP than the flow of goods.

The panel was invited to respond to what the speakers said.

CLARE LOMBARDELLI noted that this is not a new debate and most countries whilst using GDP are asking: is it measuring the right things and are we measuring them correctly? From a policy perspective she had three points to make. First, government needs a reliable and consistent measure of the economy. GDP is pretty robust, but the initially announced headline

figures are subsequently updated and no one picks up on the corrected figures when they are published often many months after the headline announcement! Second, we should take the long-term view – quarterly data is too frequent and influenced by non-economic factors (e.g. weather, Bank Holidays). Finally, on the question of should we change GDP, her answer was keep the measure but ensure we all agree on what it measures. She quite liked the New Zealand "wellbeing" measure.

PROFESSOR WEALE began by asking what we mean by economic growth and that this is clearly not available from simple measures of input, output and income. For instance, the use of expenditure net of depreciation rather than gross would at least account for material/ resource depletion. His preference was for a "national Income" measure but he was concerned about this masking inequalities in distribution. He suggested an average growth of household income expressed as a percentage since this gives each household an equal weight. This also avoids the problems of "consumer surplus" which he believes is too hard to measure.

PROFESSOR KAY provided an interesting historical background to the development of the UK GDP measure, reminding the audience that that the first estimate of UK national income and expenditure was a WW2 exercise (by James Meade and colleagues) which of necessity contained numerous factors which had to be estimated. He noted that in war you generally are not interested in depreciation, hence the use of gross figures! He pointed out that GDP is a "calibrated" measure with most inputs having internationally agreed definitions unlike many other measures whose inputs often have a subjective or rather arbitrary nature. He concluded by saying that GDP is simply a measure of aggregate output, it is a good measure of what it is intended to measure – and nothing more!

DISCUSSION

The question of measuring productivity and how this feeds into GDP or other economic measures was raised by several contributors, a specific example being digital communications where costs have reduced by a factor of more than 100,000, but this contribution to the economy is missing. Whilst acknowledging this, the panel felt this was a technical matter (linked to other problems of measuring consumer surplus), and that we needed to build satellite measures that can deal with dynamic markets. A question about how we put a value on the contribution of science to the economy led to a view that we should focus on the value of its benefits and use satellite measures that the government takes note of and cares about such as the environment, society, equality and skills.

There was a lively debate around a question about whether the assumption that GDP should always go up was an error, leading to the rejection of policies which might result in short term reduction of GDP, but with potential longer-term gains. The panels view was that this was a good example of why GDP should never be used as a policy driver, and if it had, this was probably an example of misuse of GDP by decision makers (presumably not economists!). This led to the rather forthright question that if GDP is not a welfare measure, what is it useful for? In their response, the panel highlighted that although not a welfare measure, it is one indicator and not uncorrelated; that it is a measure of economic activity, and that it can be used as a comparator, providing a structured framework within which to ask questions. They agreed that it did not address the question of productivity, but the point was raised that this might be more of an employment effect and begged the question of whether we are measuring employment correctly?

There were (inevitably!) questions around the role of GDP in understanding the success of (or guiding) government Industrial Strategy and the effects of Brexit. This led to a discussion of how factors such as nationalised services, welfare, wellbeing, data as an asset etc. are both included or reported. It was pointed out that the expenditure measures of GDP are still useful to indicate future consumption and income measures do give an idea of distribution, but all agreed that separate additional measures need to be developed, though many are already widely reported. The national statistical offices in many countries (notably the UK, USA and New Zealand) are very active in this area, but to do this successfully needs maintained political drive.

On Brexit, it was noted that this may make GDP more important as we will need an internationally valued measure which can at least indicate direction of movement. This led to questions around whether GDP accounts for where companies and assets are owned, and it was pointed out that GNP was the indicator that took this into account. A final question about the broader international context asked if GDP could (or should) take into account "externalities" such as changes in national or international politics. The panel was strongly of the view that we should not try to build these into GDP (avoid "muddying the waters")

and focus more on getting international agreement on some of the other Dashboard metrics.

A closing question asked what unit of measure the panel would like to see invented! This led to a remarkable unanimity (for economists) pleading not for a new unit of measurement but rather more accurate (and internationally agreed) measurement of existing units (particularly measures of price and quality). It was however noted that if we use price then we can only compare things we can price. The strength of price is that it avoids difficult things like poetry and beauty and the weakness of price is that it avoids difficult things like poetry and beauty!

Professor David Delpy CBE FRS FREng FMedSci

Useful URLs

McKinsey Global Institute report - February 2018
Solving the Productivity Puzzle: The Role of Demand and the Promise of Digitization
https://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Meeting%20societys%20expectations/Solving%20the%20productivity%20puzzle/MG-Solving-the-Productivity-Puzzle--Report-February-2018.ashx

Tera Allas
www.csap.cam.ac.uk/network/tera-allas

Professor Jonathan Haskel
www.imperial.ac.uk/people/j.haskel

Capitalism without Capital, The Rise of the Intangible Economy
Haskel J and Westlake S, Princeton University Press, 2017
https://press.princeton.edu/titles/11086.html

Indigo Prize
http://global-perspectives.org.uk/indigo-prize/

Professor John Kay CBE FRSE FBA
www.johnkay.com

House of Commons Evidence - Professor Martin Weale CBE
https://publications.parliament.uk/pa/cm201011/cmselect/cmtreasy/475/475we03.htm

King's College London - Professor Martin Weale CBE
www.kcl.ac.uk/sspp/departments/politicaleconomy/People/academic/weale.aspx

Happiness: lessons from a new science, Layard, Richard, Allen Lane, 2005

Independent Review of UK Economic Statistics, Professor Sir Charlie Bean, March 2016
www.gov.uk/government/publications/independent-review-of-uk-economic-statistics-final-report

Academies, research organisations, companies and universities

Association of Innovation, Research and Technology Organisations (AIRTO)
www.airto.co.uk

British Academy
www.britac.ac.uk

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www.catapult.org.uk

Cranfield University
www.cranfield.ac.uk

Department for Business, Energy and Industrial Strategy
www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy

ERA Foundation
www.erafoundation.org

Government Office for Science
www.gov.uk/government/organisations/government-office-for-science

HM Treasury
www.gov.uk/government/organisations/hm-treasury

Knowledge Transfer Network
www.ktn-uk.co.uk

Learned Society of Wales
www.learnedsociety.wales

Lloyd's of London
www.lloyds.com

Lloyd's Register Foundation
www.lrfoundation.org.uk

London Stock Exchange Group
www.lseg.com

McKinsey Center for Government
www.mckinsey.com/industries/public-sector/mckinsey-center-for-government

National Physical Laboratory (NPL)
www.npl.co.uk

Nesta
www.nesta.org.uk

Royal Academy of Engineering
www.raeng.org.uk

Royal Statistical Society
www.rss.org.uk

The Royal Society
www.royalsociety.org

The Royal Society of Edinburgh
www.rse.org.uk

Russell Group
www.russellgroup.ac.uk

The Alan Turing Institute
www.turing.ac.uk

UKRI
UK Research and Innovation
www.ukri.org

Arts and Humanities Research Council
www.ahrc.ukri.org

Biotechnology and Biological Sciences Research Council
www.bbsrc.ukri.org

Engineering and Physical Sciences Research Council
www.epsrc.ukri.org

Economic and Social Research Council
www.esrc.ukri.org

Innovate UK
www.gov.uk/government/organisations/innovate-uk
Medical Research Council
www.mrc.ukri.org

Natural Environment Research Council
www.nerc.ukri.org

Research England
www.re.ukri.org

Science and Technology Facilities Council
www.stfc.ukri.org

UK Statistics Authority
www.statisticsauthority.gov.uk

University Alliance
www.unialliance.ac.uk

Wellcome Trust
www.wellcome.ac.uk

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www.willistowerswatson.com/en

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Registered Charity Number: 274727
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