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The inexact science of  
construction statistics  
and  
the impediments to accurate  
measurement in the real world

## Sources of information

- National data sources, e.g. ONS, US BEA
- Eurostat
- Unstats
- World Bank
- Bureau van Dijk, Financial Accounts Made Easy

## An inexact science

- We do not live in a laboratory.
- Data for illustration only
  - Percentages
  - Graphs
  - Purpose is to show the relative scale of an issue

But... so what?

What about the statistical significance?

And what about the margin of error?

...but many users make assumptions  
about the use of numbers

- Preciousness of data and statistics
- Shuts off comment and criticism
- The assumption is the data must be accurate and correct: somehow it is the truth!
- The important accurate thing to say is that the data is “published”.

- We can talk about “official” data
- Not necessarily true but is the starting point for understanding.
- It is indicative.
- Official data usually informs public sector policy and decision making.

## Practical impediments to accuracy

- In poor (and wealthy) countries, is collecting data always seen as important? It is costly to collect.
- How accurate is the data? Who verifies the data and checks for accuracy?
- What about the motives of respondents and data gatherers?
- What is the purpose of collecting the information?

## Obstacles to accuracy

- Selection of sample
- Size of sample
- Bias
- Collecting the data
- Commercial secrecy

## We need...

- Maths and statistical skills are needed. It is not enough to say x% of something or other.
- We need to be able to compare results and say if the differences are statistically significant.

## What else do we need?

- We need to be able to run a time series and compare the changes over time and say if the changes are statistically significant or not.
- We need to be able to understand all the tests of significance to be able to select the most appropriate one.

Gary Koop, (2013),  
*Analysis of Economic Data*,  
4<sup>th</sup> Edition, Wileys

- We need to appoint statisticians in every university construction department for
  - Training in statistics techniques and interpretation
  - Designing research and data gathering to fit in with the needs of sound analysis
  - Research support for publications, in advance of designing the research.
  - Test the null hypothesis

## Significant differences?

- Size?
- Between the averages?
- Changes or improvements?
- Time series?
- Compared to expectations?

That's it! Thanks.

