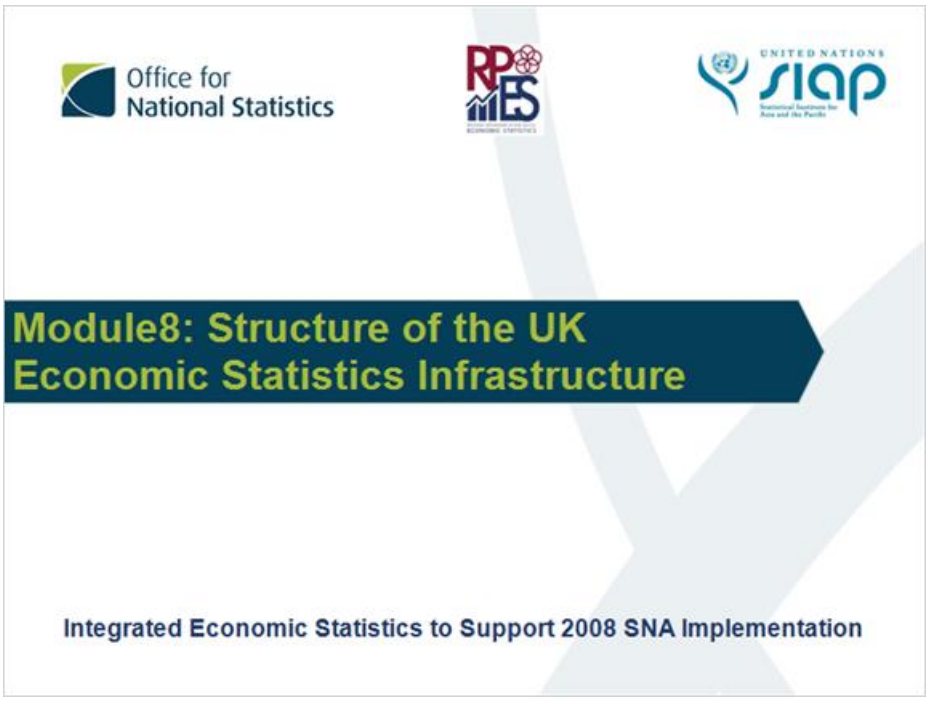
Module8 Structure of the UK Economic Statistics Infrastructure

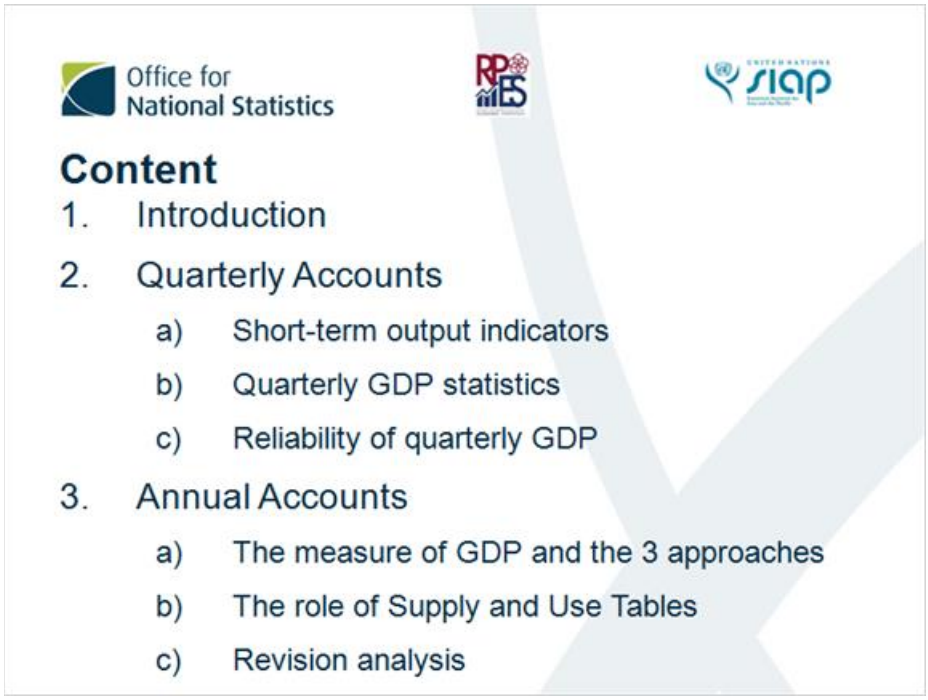
1. UK Economic Stat Infrastructure

1.1 Session 4.1:

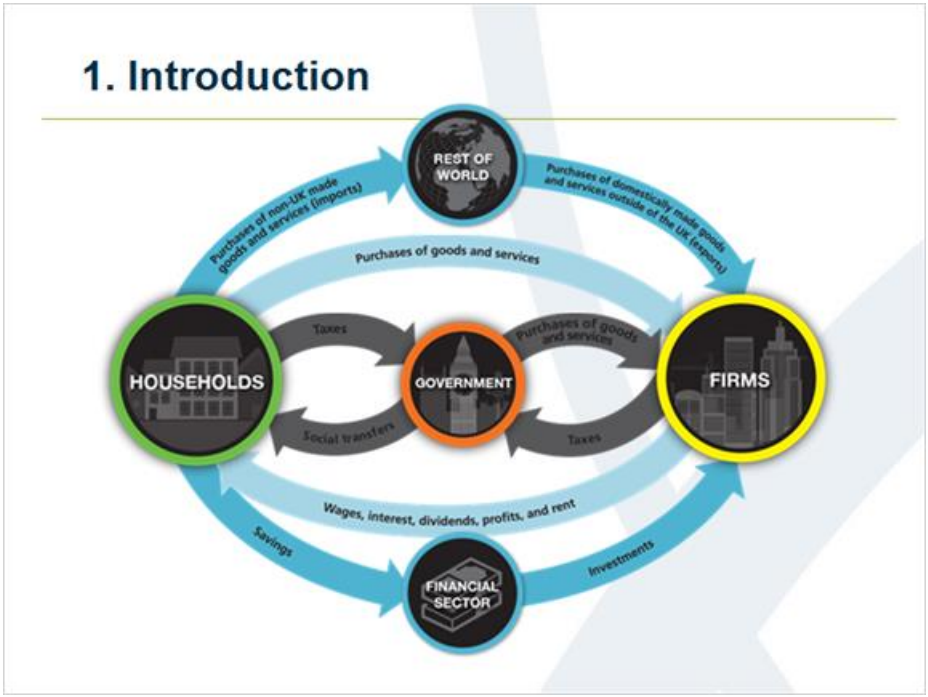


Notes:

1.2 Content



1.3 1. Introduction



1.4 1. Introduction

1. Introduction

To measure the 'size' of the economy, what should we measure?

1. What businesses produce?
2. What people spend?
3. What 'factors' earn?

   Factors being people and capital

1.5 1. Introduction: The three measures of GDP

1. Introduction: The three measures of GDP

In practice we measure all three:

- **GDP Production (or Output) measure**

The sum of value added from production of all goods and services

- **GDP Expenditure measure**

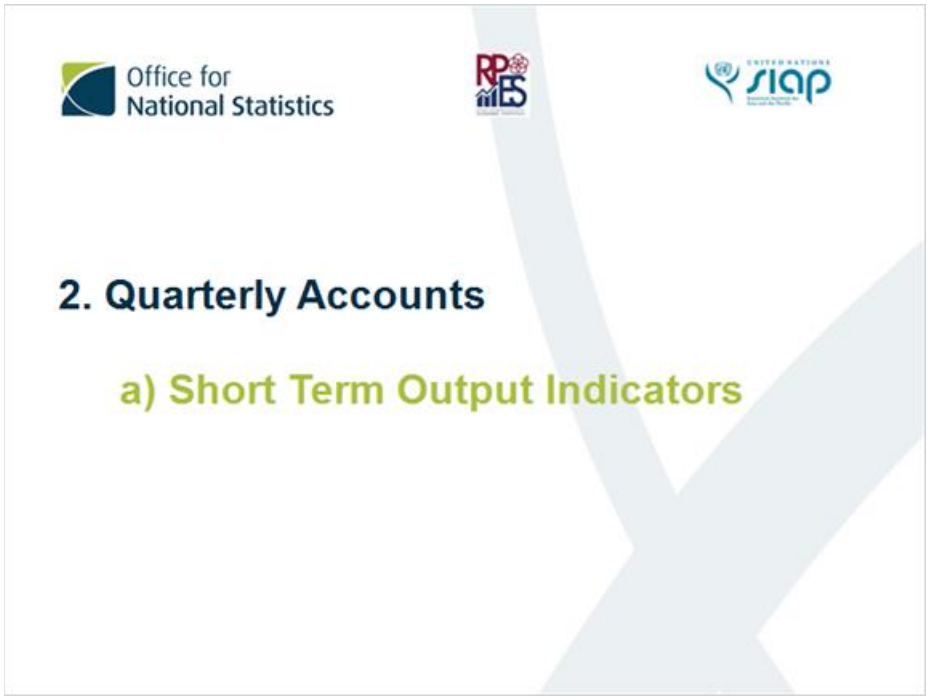
The total expenditures of all finished goods and services produced.

- **GDP Income measure**

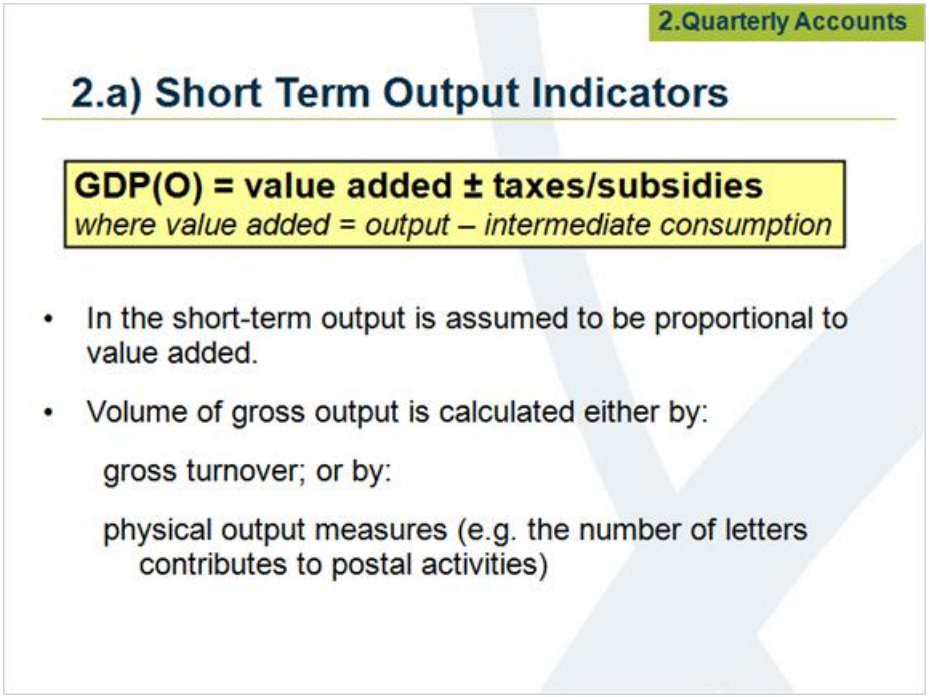
The total income generated by producers of goods and services and income of employees.

See more in session 3.1

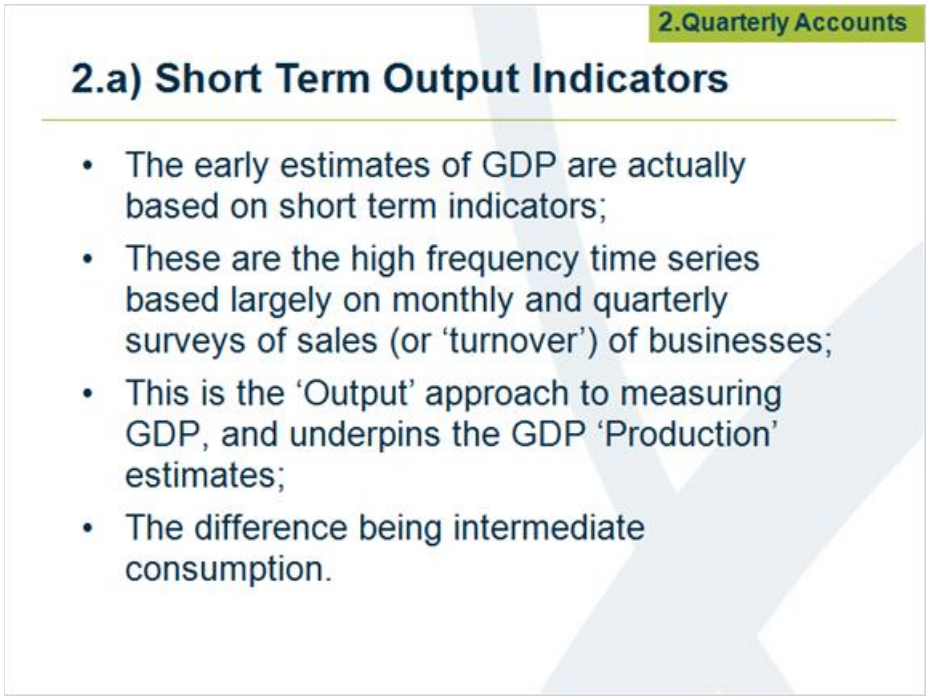
1.6 Short Term Output Indicators



1.7 2.a) Short Term Output Indicators



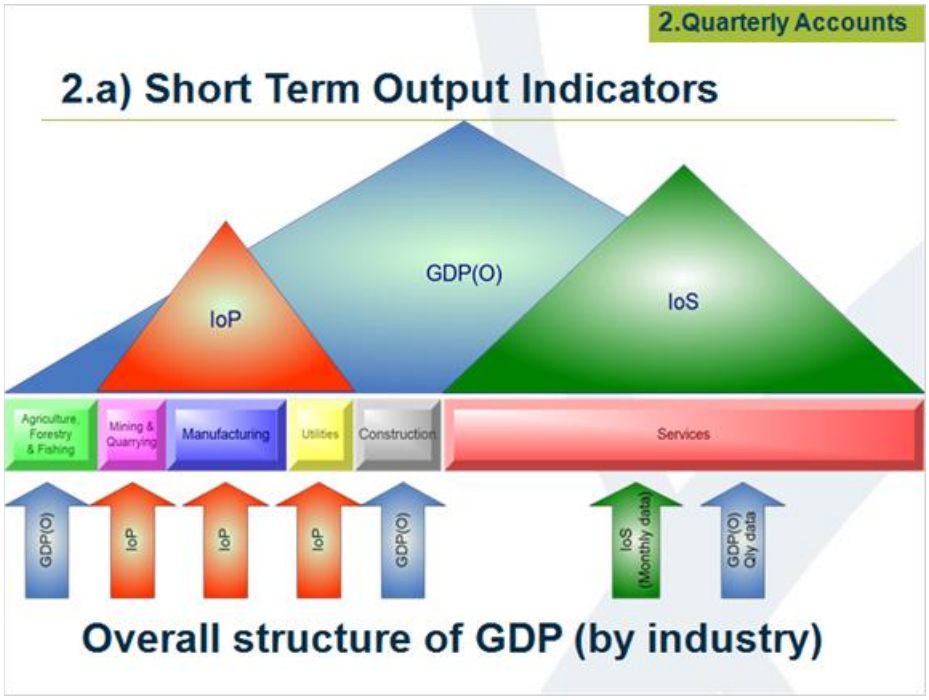
1.8 2.a) Short Term Output Indicators



Notes:

: i.e.
GDP(P) = GDP(O) + Changes in inventories

1.9 Overall structure of GDP (by industry)



Notes:

See Current STOID systems.vsd for original

1.10 Short Term Output Indicators

Notes:

I'm going to talk briefly about the output measure of GDP. I'll first giving you an overview of what it is, and then say something about the data content of the estimates. Lastly I'll look at some of the reasons why these estimates are revised.

Conceptually what we want to measure is the total value added within the UK economy. The output approach uses the change in the volume of output as proxy for the change in GDP. It is ONS policy that this is the best measure of short-term change. This is based on our experience over a number of years of the movements of output compared to the other measures of GDP.

The basic assumption here is that, in the short term, the relationship between output and Gross Value Added is stable.

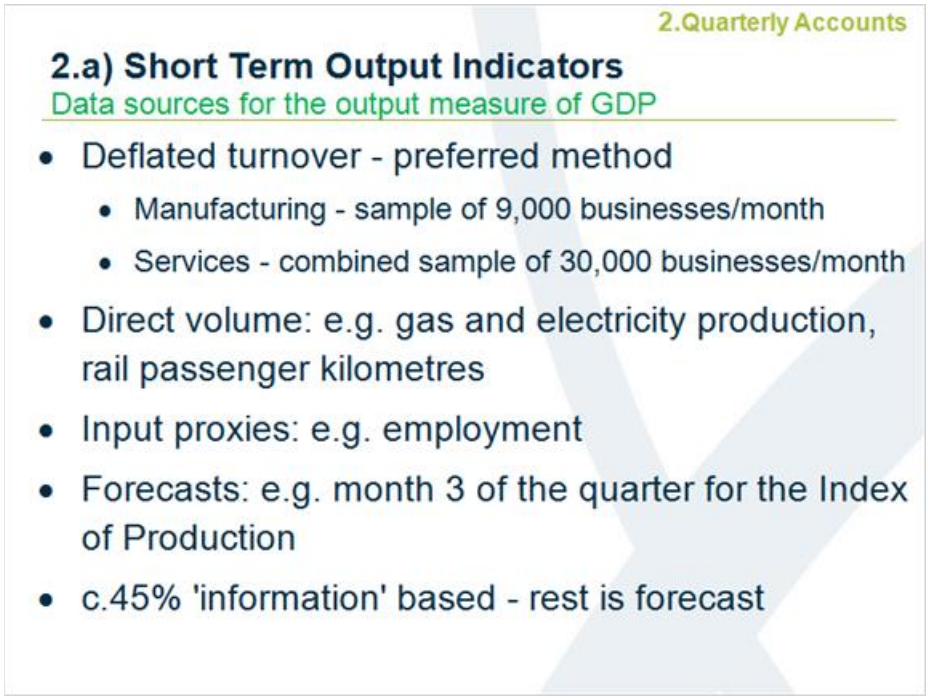
The estimate of total GDP is compiled by combining indices for around 400 'industries' using weights based on the latest firm estimates of Gross Value Added. Currently this is 2000, although this will be updated to 2001 in June.

The output approach is used as the basis for ONS' Preliminary estimate of GDP. This is among the fastest estimates of its type in the world. The Preliminary release for Q1 2009, for example, was published just 23 days after the reference period, on 23rd April.

Of course, there's a trade-off between the speed with which this estimate is produced and the likelihood of it being revised (which I'll say more about shortly).

In the Preliminary GDP release, the detail available for publication is limited because of the uncertainty around individual components. The release therefore just presents total GDP, total production, and total services.

1.11 2.a) Short Term Output Indicators



Notes:

We'll now take quick look at the data used to compile the output estimate of GDP.

As I mentioned, using this approach the volume of output is taken as a proxy for GVA, and the preferred method for measuring output volumes is to use deflated turnover.

In the manufacturing sector, ONS surveys the turnover of around 9,000 businesses each month. This is deflated using Producer Price Indices, based on prices collected from a further 9,000 businesses.

For Services, we collect turnover data from 34,000 businesses each month, and deflate using a variety of means. For example using Corporate Services Price Indices or Consumer Price Indices.

Where we can't collect turnover or price data we use direct volume measures. For example, we collect the number of passenger kilometres from the Strategic Rail Authority.

We also use some input proxies where we don't have turnover or direct volume measures. For example we use the change in the number of employees for some parts of central government.

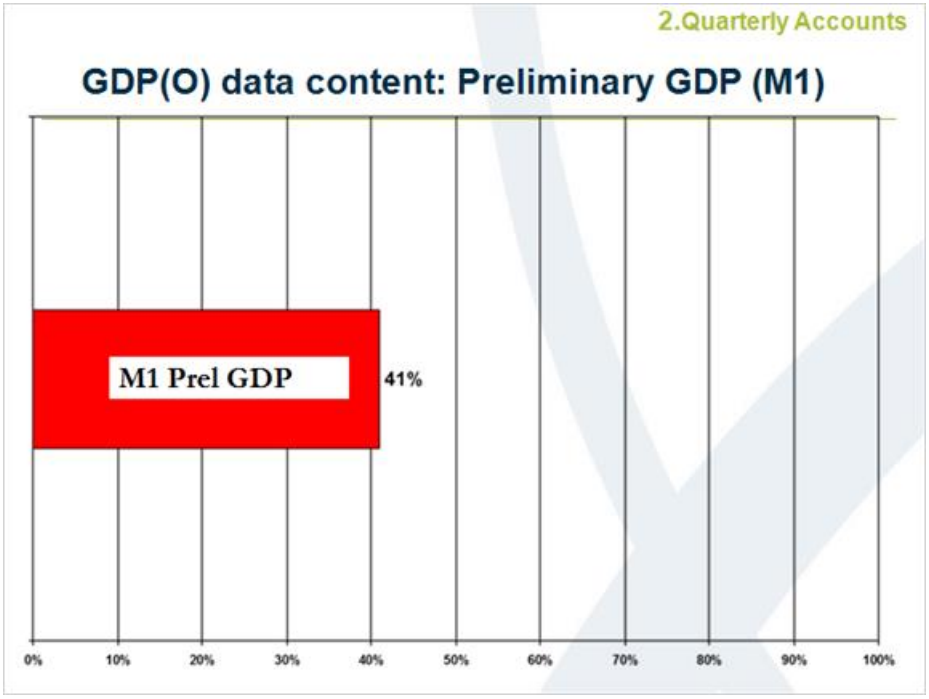
Where we don't have any data, we use standard forecasting techniques to estimate output. For example, at the time of the Preliminary GDP release we have data for the first two months of the quarter for the Index of Production, but not for the third month. We therefore use a forecast for this month.

Of course, as data become available, the forecasts are replaced.

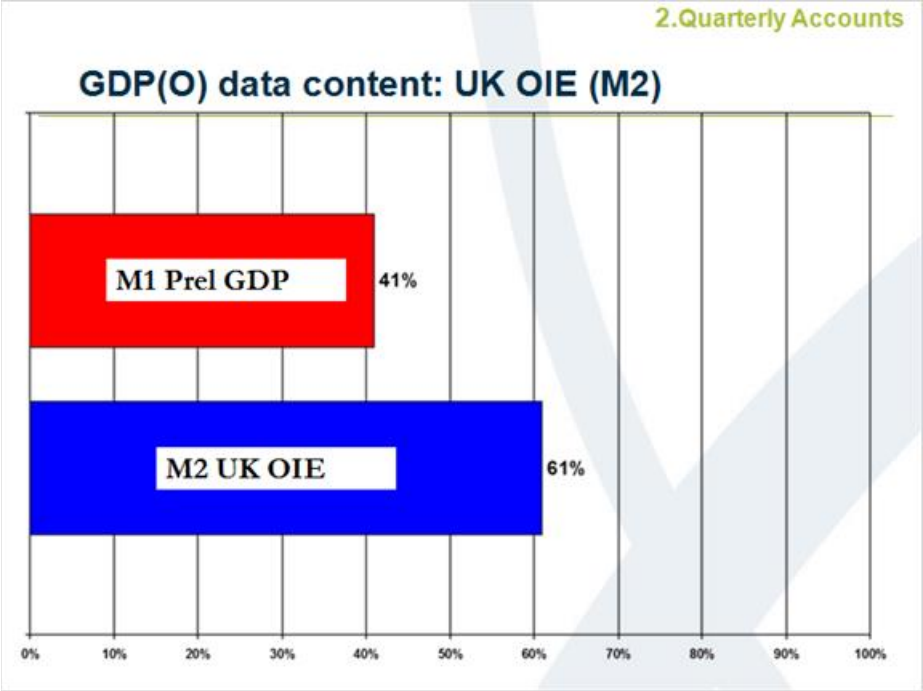
Overall, we estimate that around 45% of the Preliminary estimate of GDP is based on information. The missing components tend to be those which are less volatile, and therefore less likely to affect the quarterly estimates of growth.

1.12 Quarterly GDP statistics

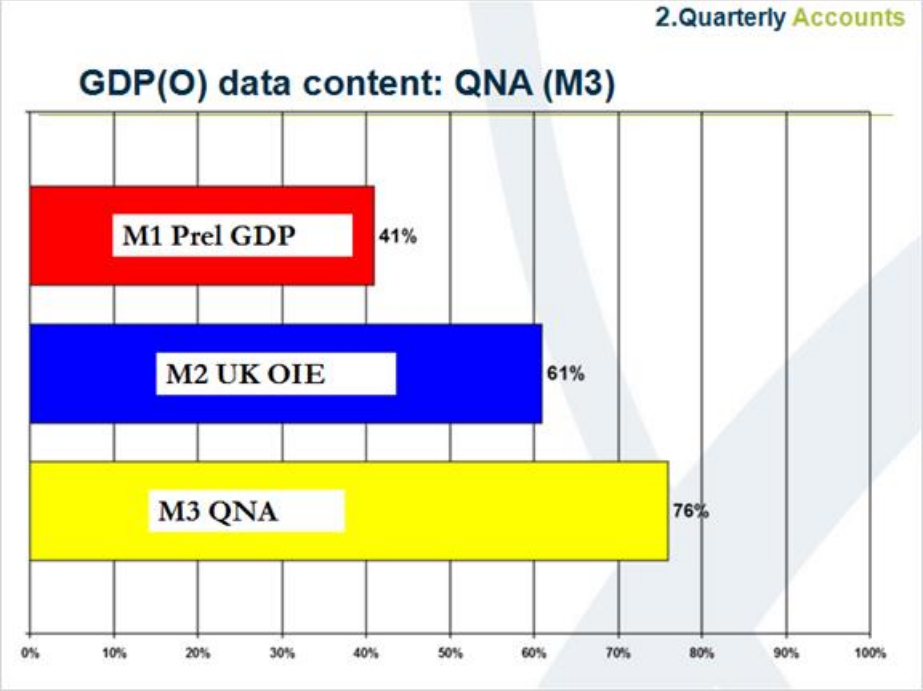
1.13 GDP(O) data content: Preliminary GDP (M1)



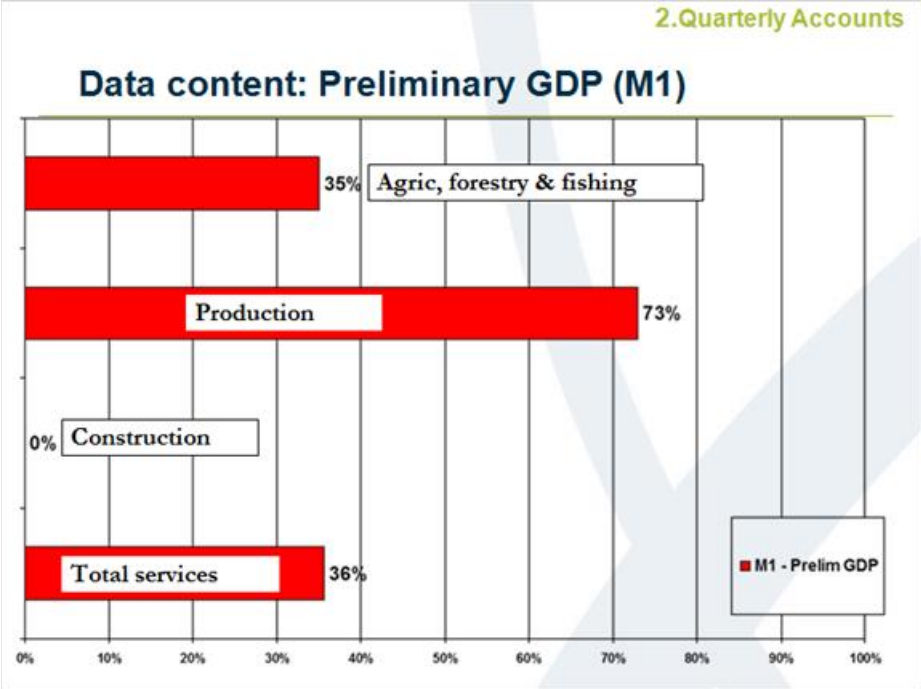
1.14 GDP(O) data content: UK OIE (M2)



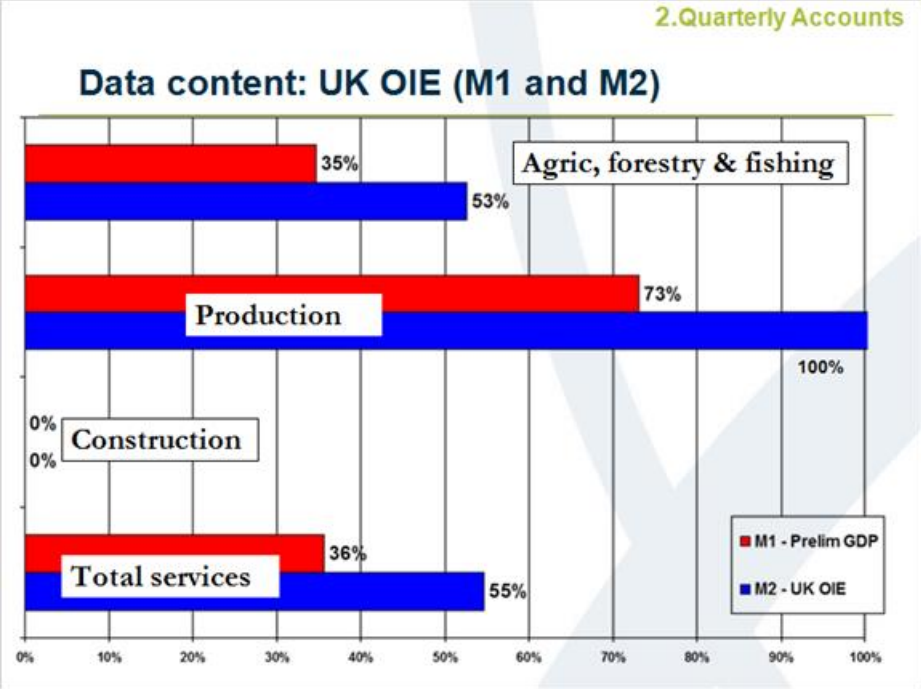
1.15 GDP(O) data content: QNA (M3)



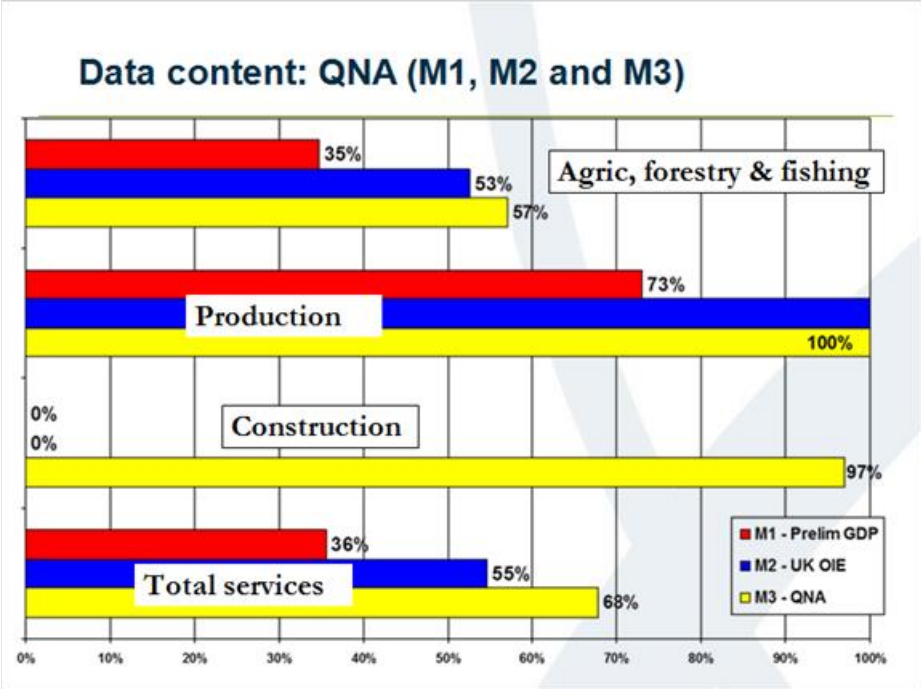
1.16 Data content: Preliminary GDP (M1)



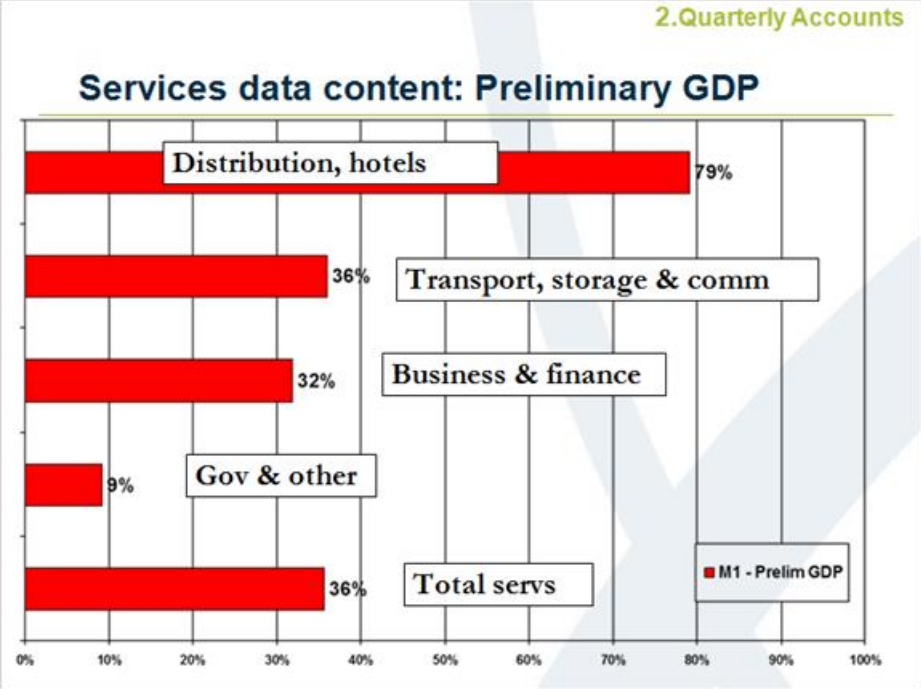
1.17 Data content: UK OIE (M1 and M2)



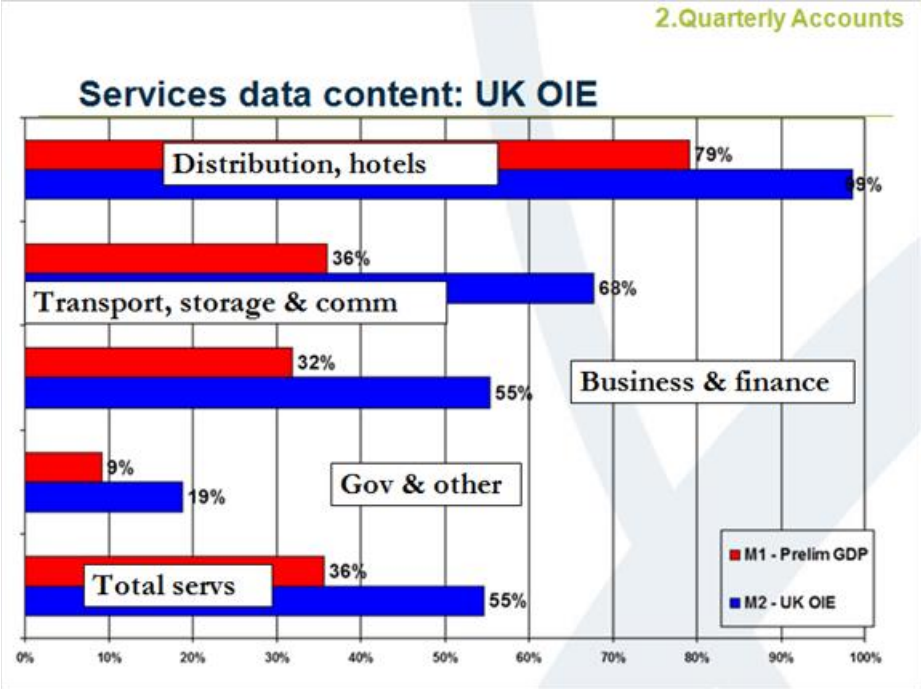
1.18 Data content: QNA (M1, M2 and M3)



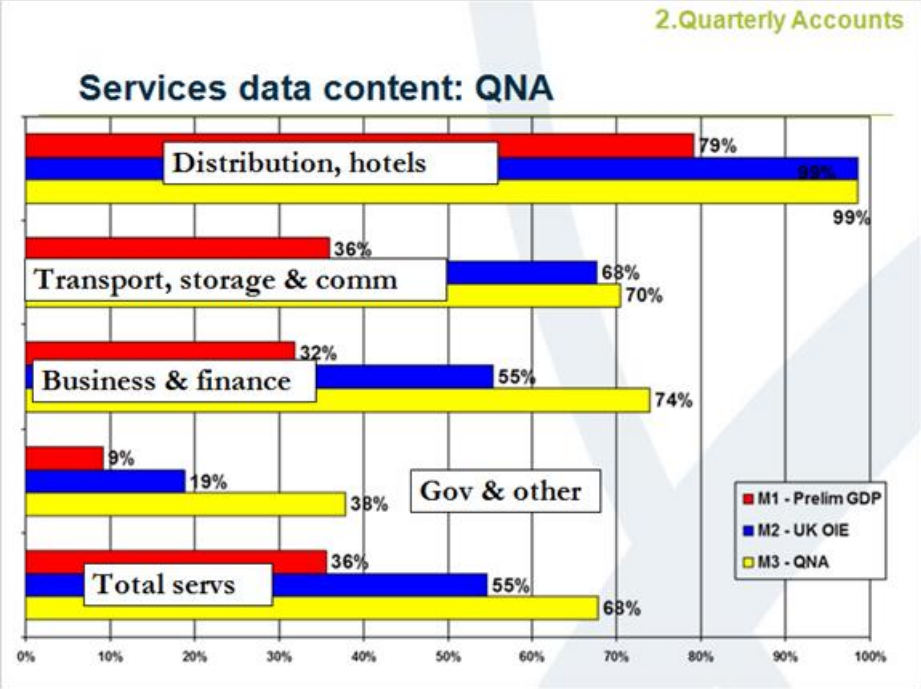
1.19 Services data content: Preliminary GDP



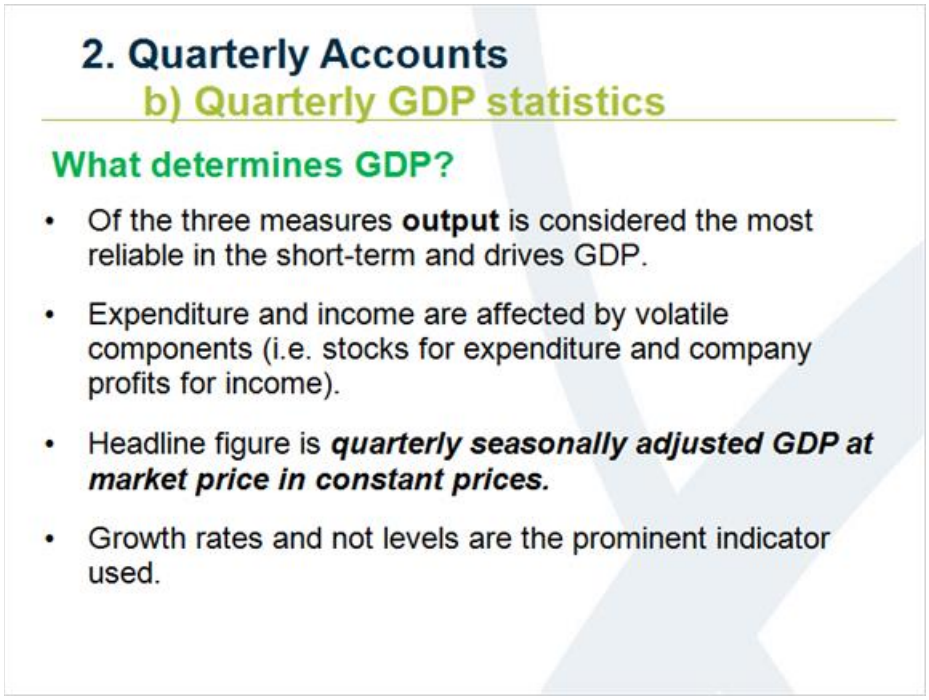
1.20 Services data content: UK OIE



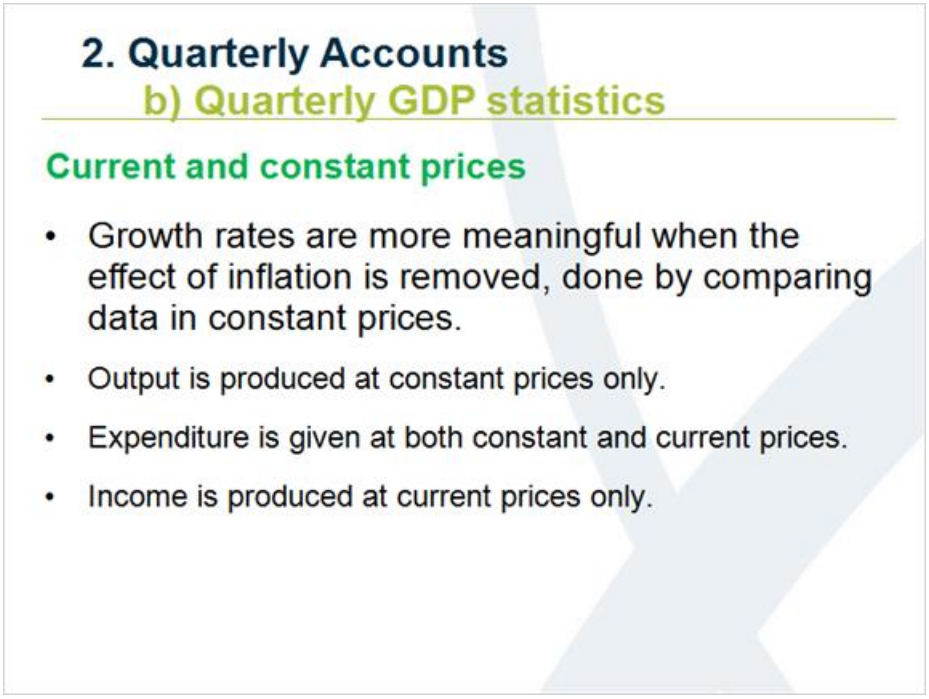
1.21 Services data content: QNA



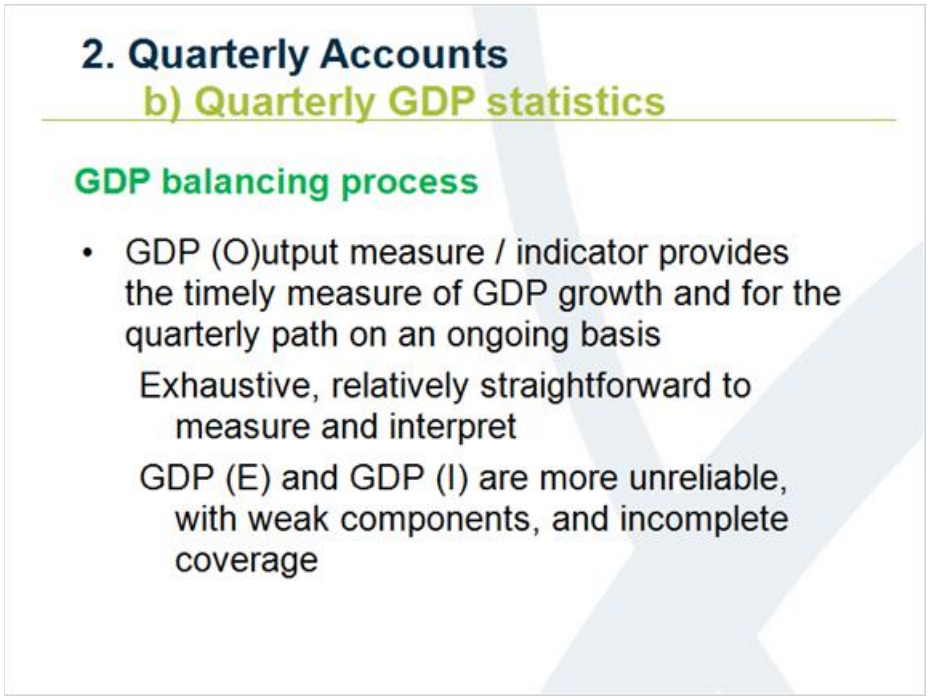
1.22 What determines GDP?



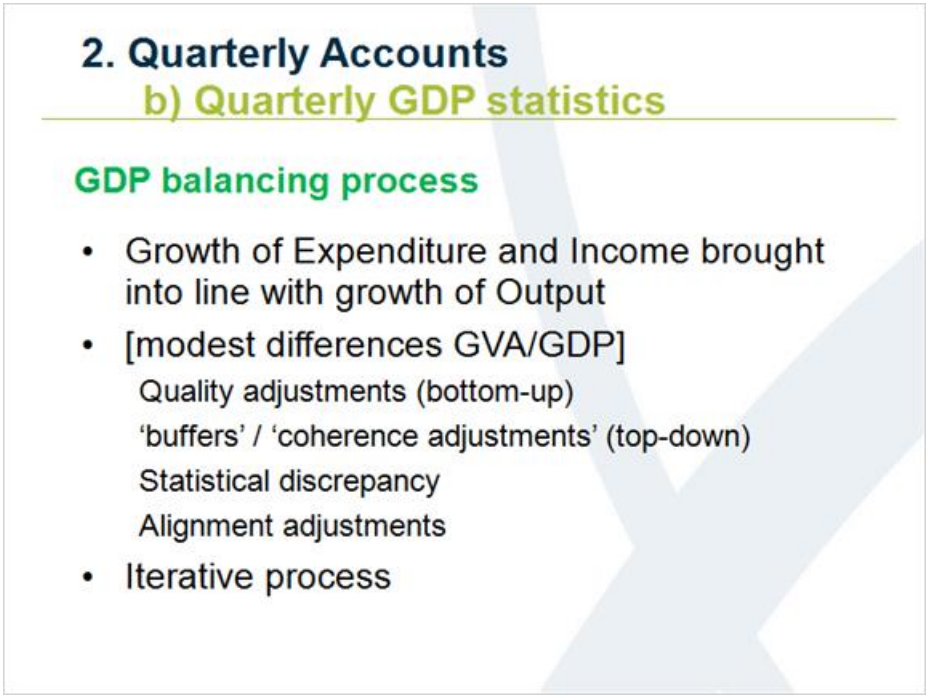
1.23 Current and constant prices



1.24 GDP balancing process



1.25 GDP balancing process



1.26 Reliability of quarterly GDP

1.27 Buffers analysis

1.28 Statistical discrepancy between GDP's

2. Quarterly Accounts
c) Reliability of quarterly GDP

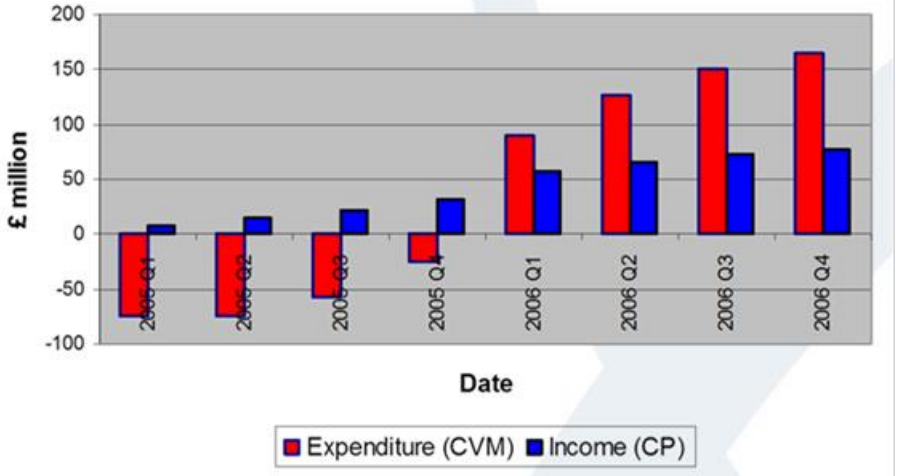
Statistical discrepancy between GDP's

- Unallocated divergence between measures
- Summing provides a measure of dispersion of the three measures
- Rules: Statistical discrepancies should be kept to within £2bn for the current year and £1bn for the current quarter (internal guidelines)

1.29 Statistical Discrepancies

Statistical Discrepancies

Expenditure & Income: 2006Q4 published



1.30 Alignment adjustments

2. Quarterly Accounts
c) Reliability of quarterly GDP

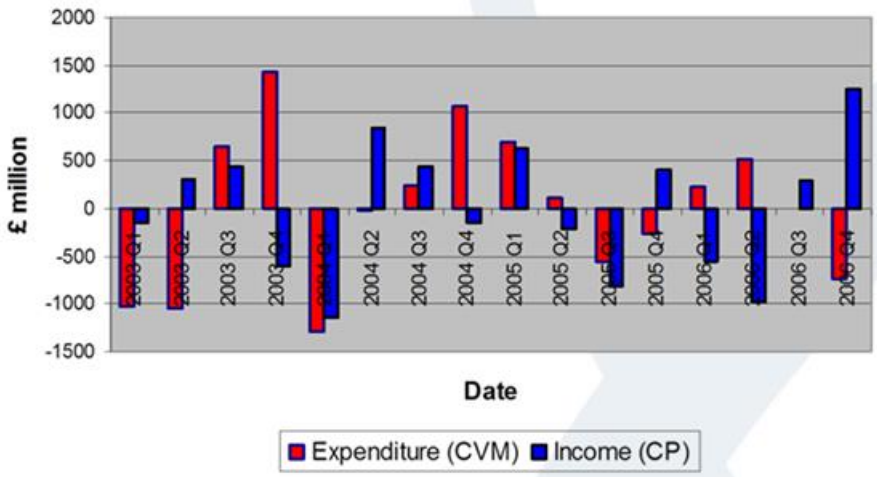
Alignment adjustments

- Change in inventories and private non-financial companies gross operating surplus
- Sum to zero across year
- Rule: Alignment adjustments should not exceed £1bn in any given quarter (internal guideline)

1.31 Alignment adjustments

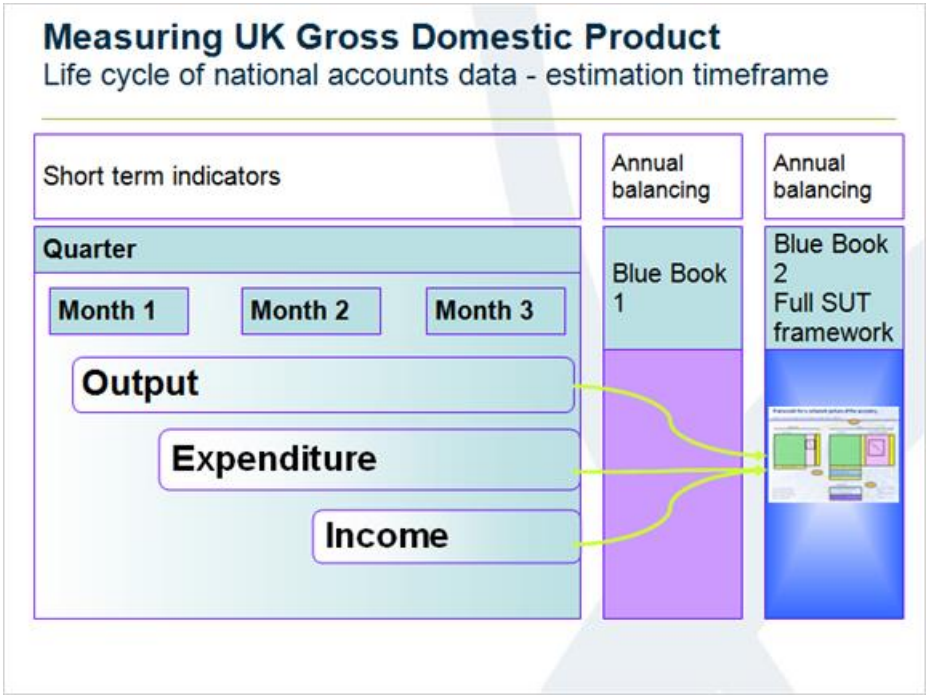
Alignment adjustments

Expenditure & Income: 2006Q4 published



1.32 3. Annual Accounts

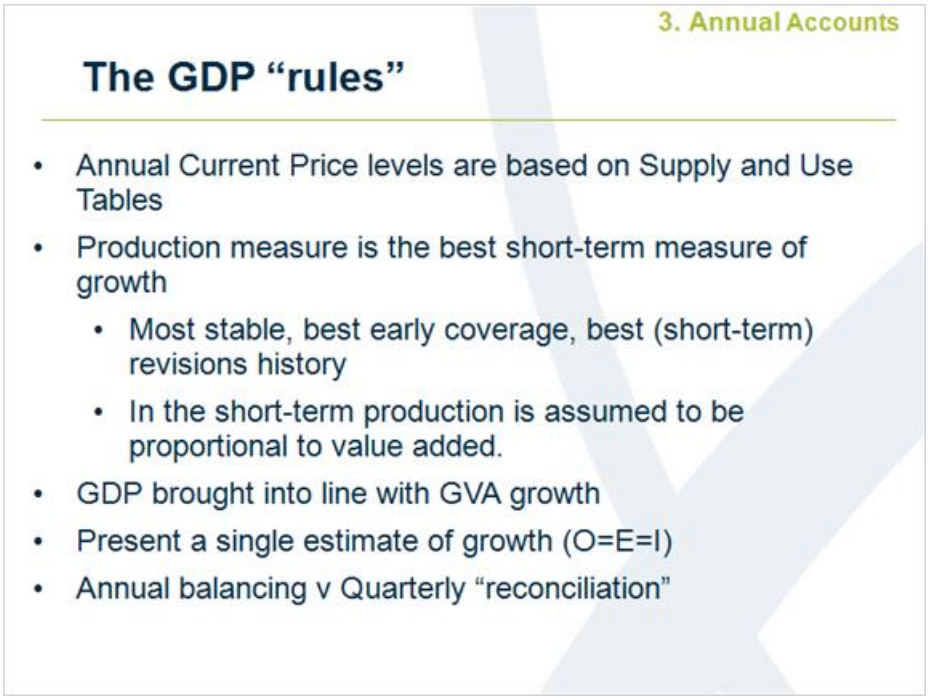
1.33 Measuring UK Gross Domestic Product



Notes:

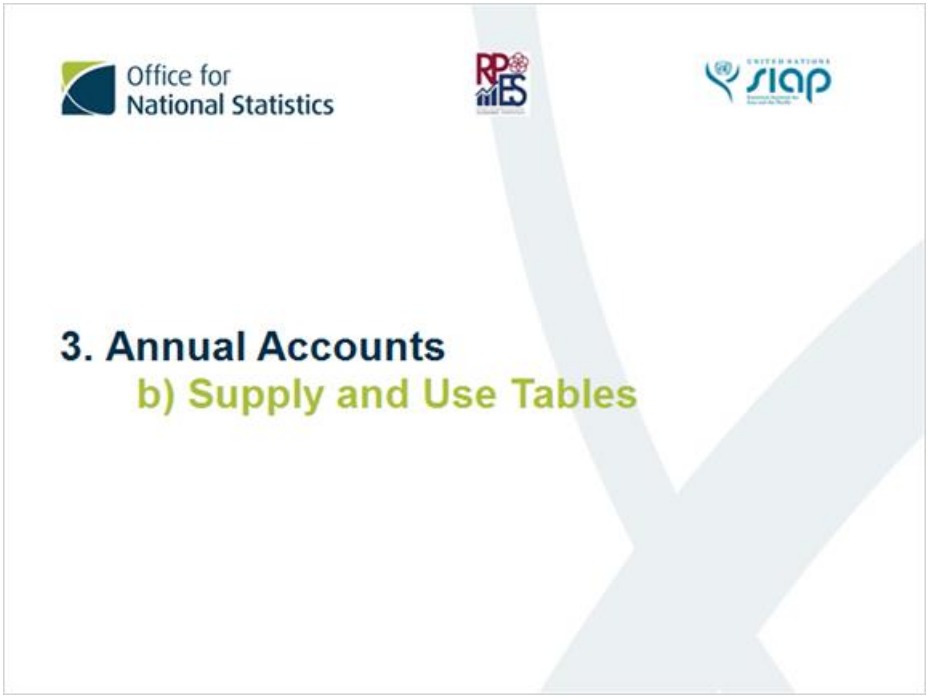
ONS have a strategy, that we follow when balancing annual GDP and when balancing the most recent quarters.
Annual level of GDP at current prices is best generated through the I-O Supply and Use Tables process of balancing information on production, income and expenditure.
Quarterly growth is best estimated using the output measure of GDP.
Expenditure and income are brought into line with output through alignment adjustments to change in inventories and PNFC operating surplus.
Mixture of scientific, judgmental and automatic balancing.

1.34 The GDP "rules"

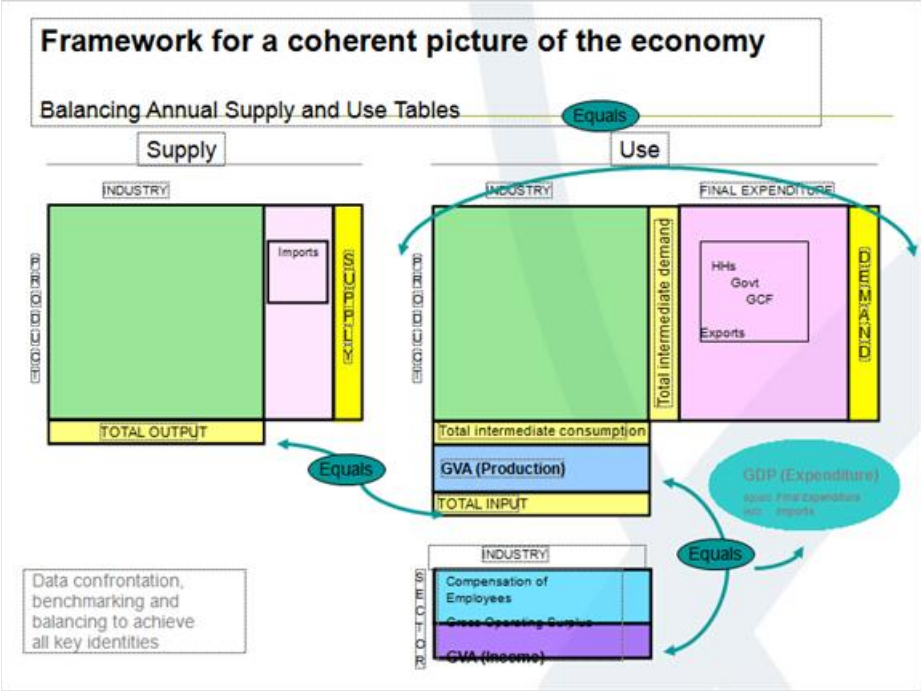


1.35 Annual coherence adjustments

1.36 3. Annual Accounts



1.37 Framework for a coherent picture of the economy

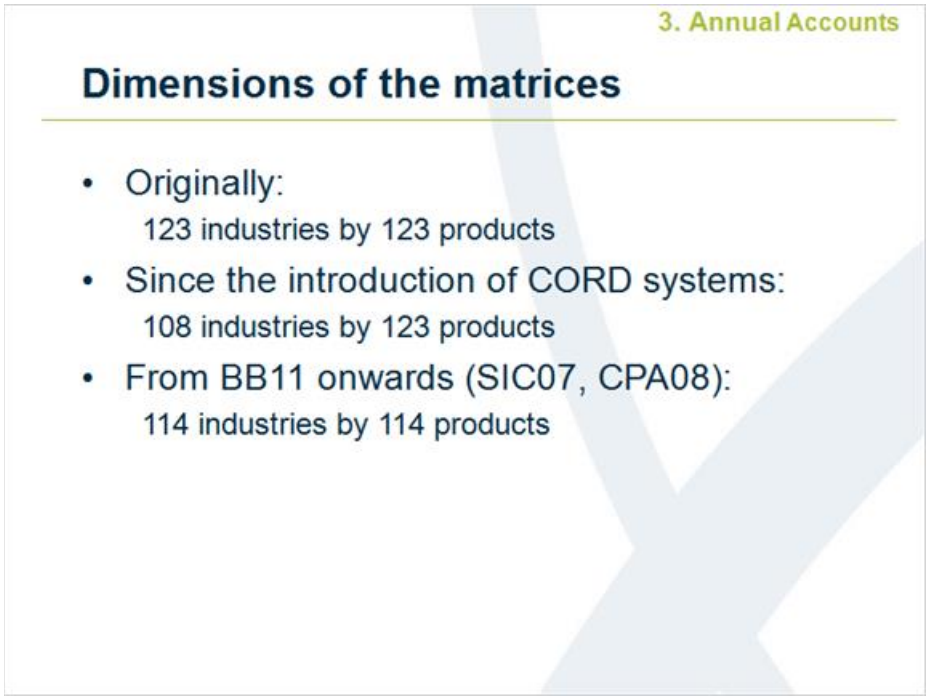


Notes:

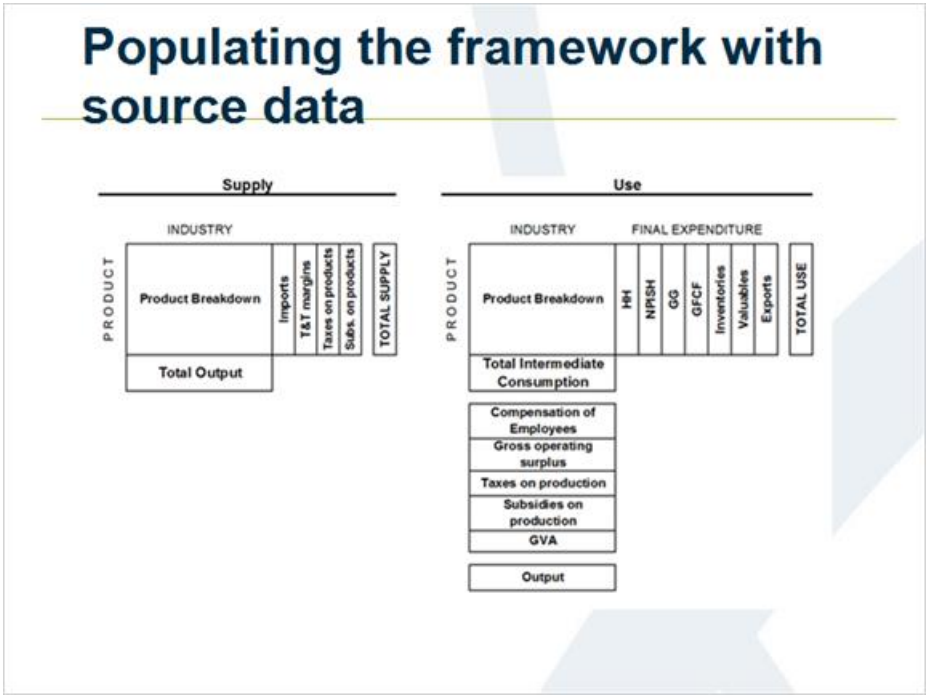
For each industry: Inputs = Outputs
For each product: Supply = Demand
For GVA: Production measure = Income measure

When complete: GDP (Production = Income = Expenditure)

1.38 Dimensions of the matrices



1.39 Populating the framework with source data



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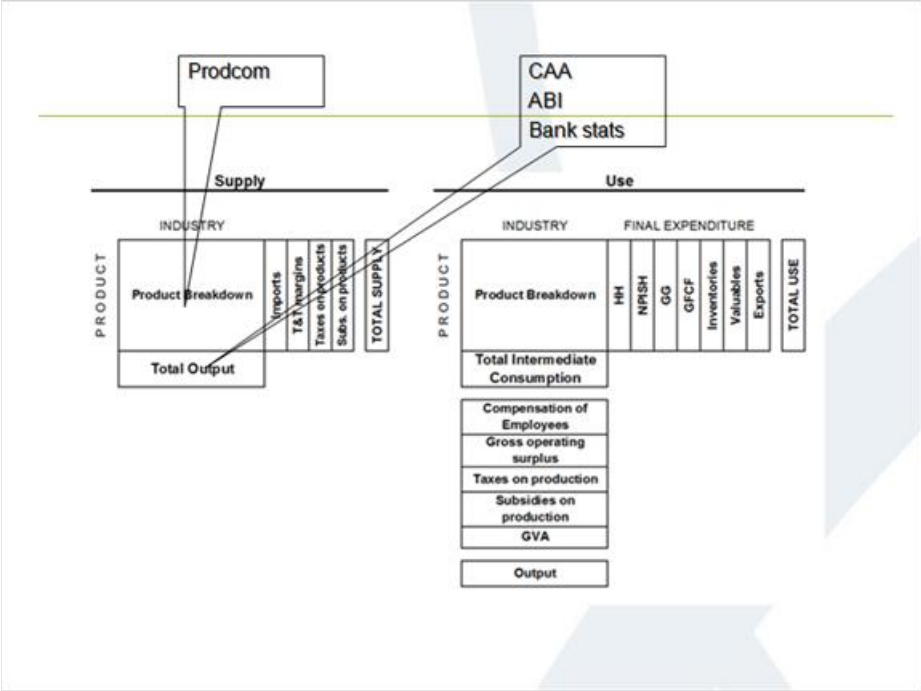

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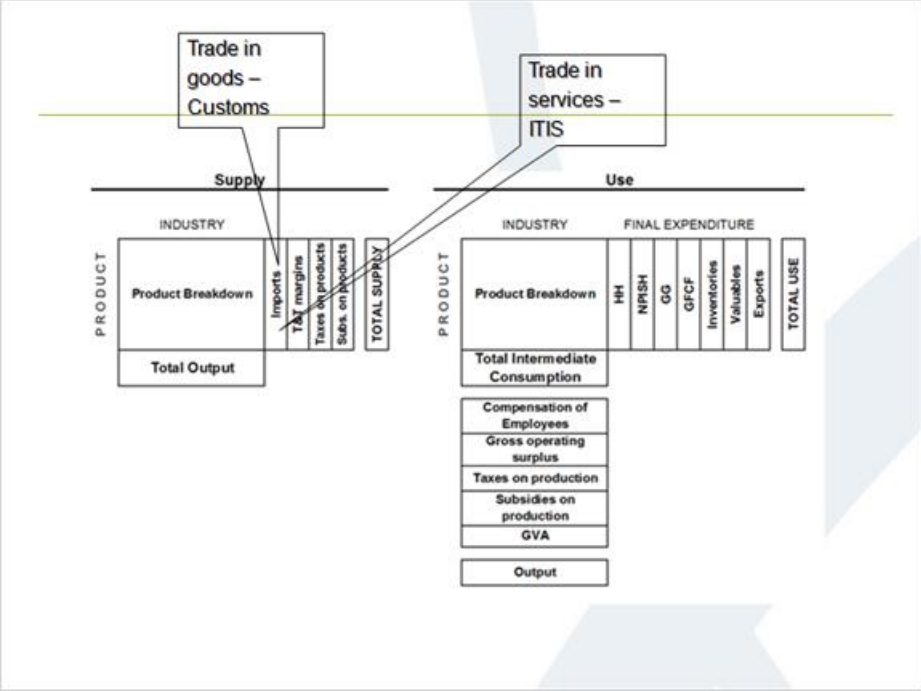
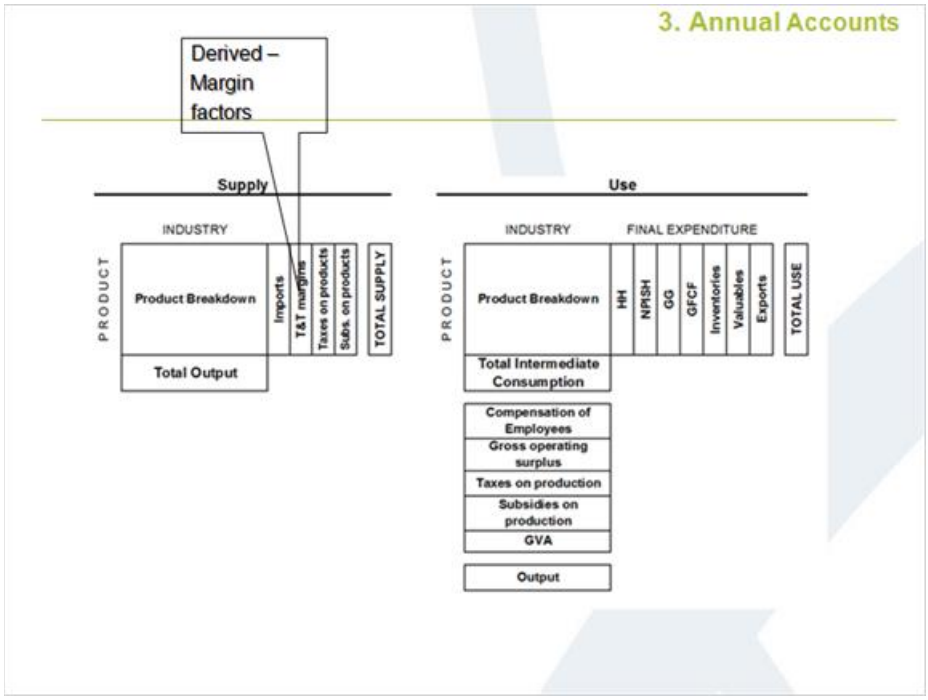


1.42 Populating the framework with source data



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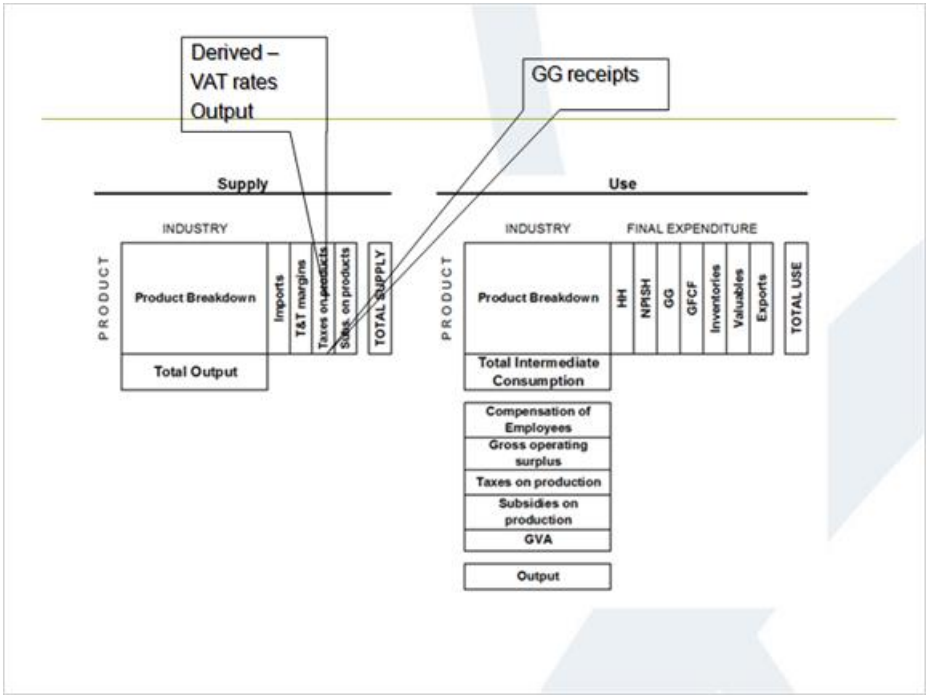

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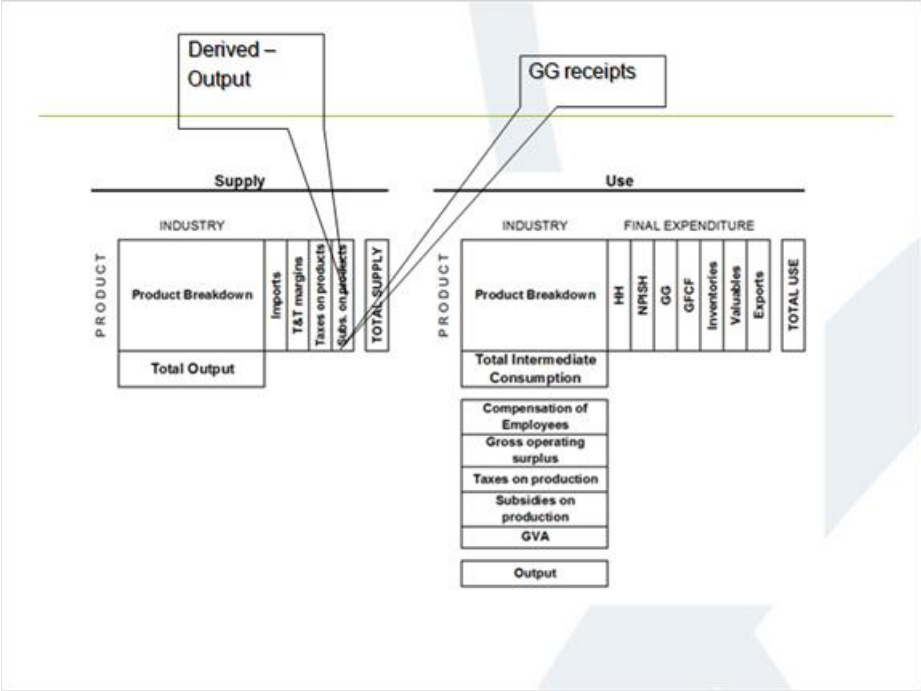
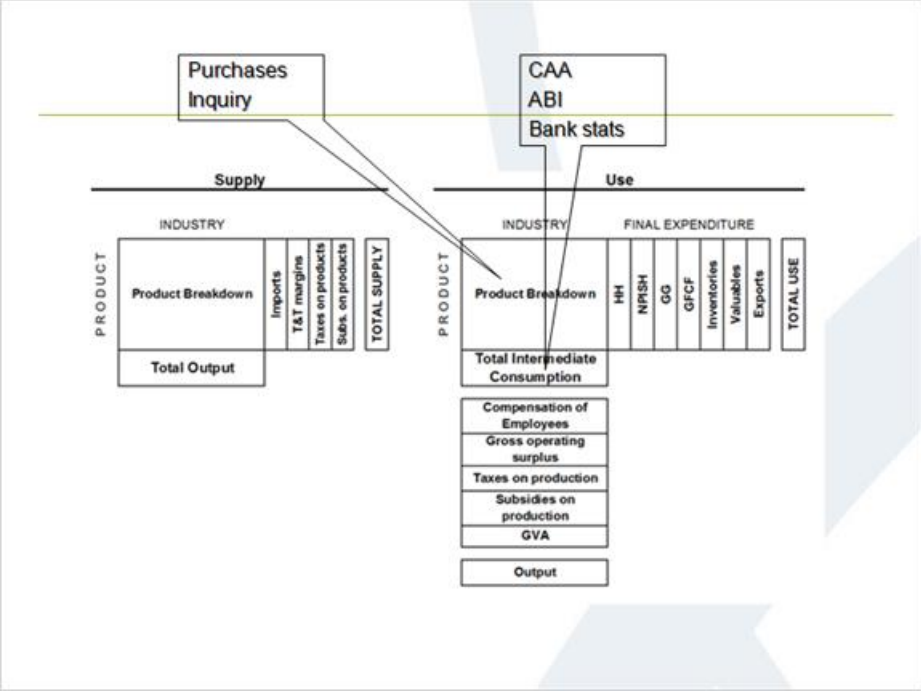
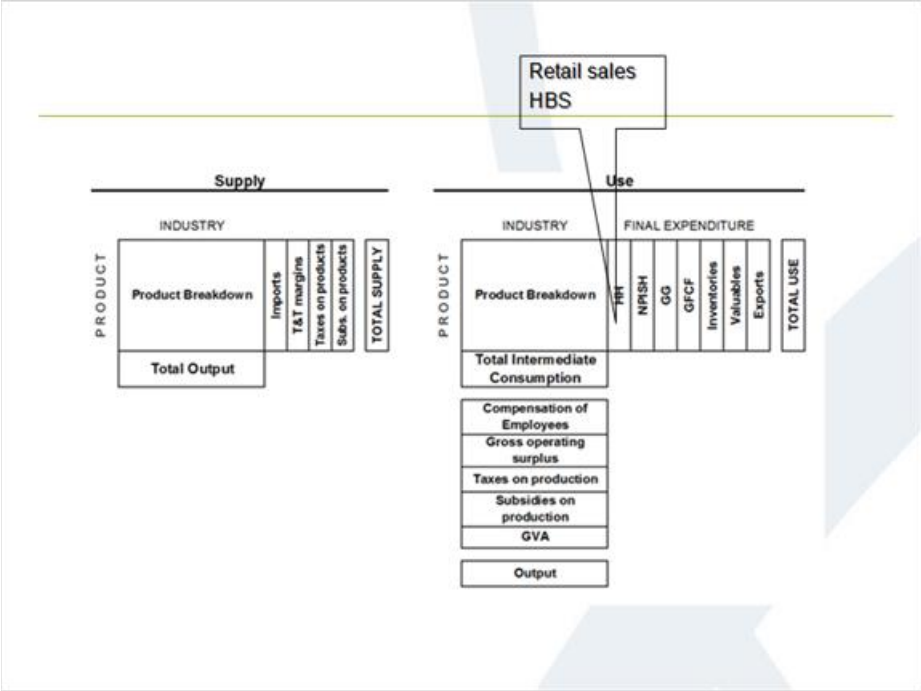


1.45 Populating the framework with source data



1.46 Populating the framework with source data



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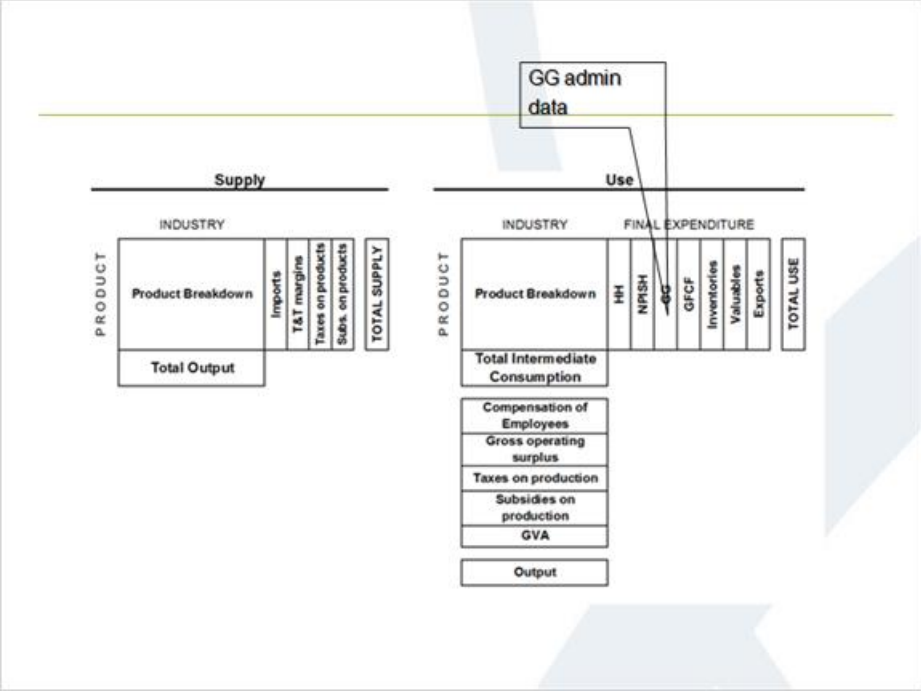
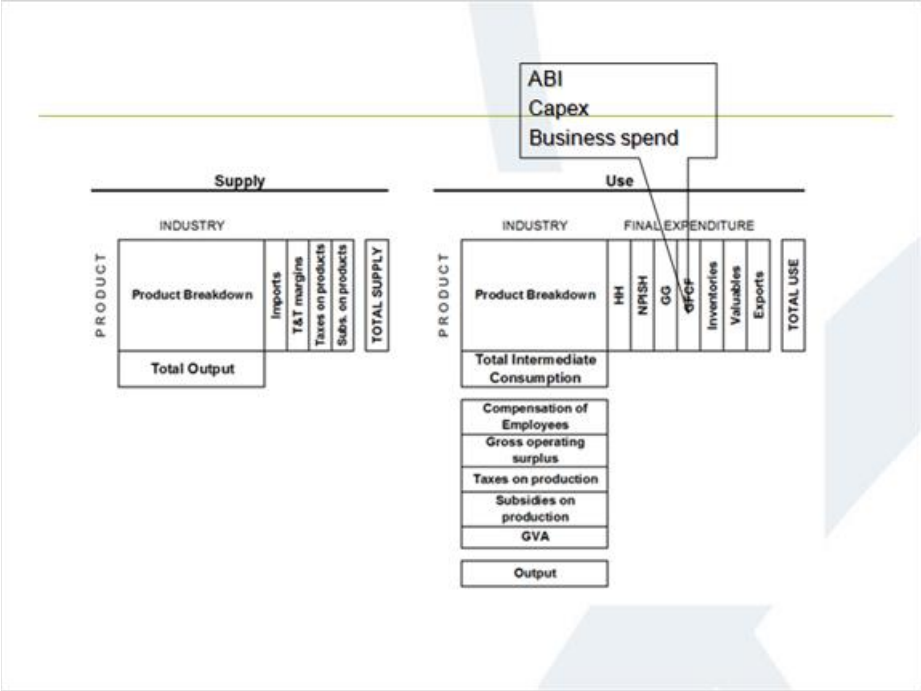


1.48 Populating the framework with source data



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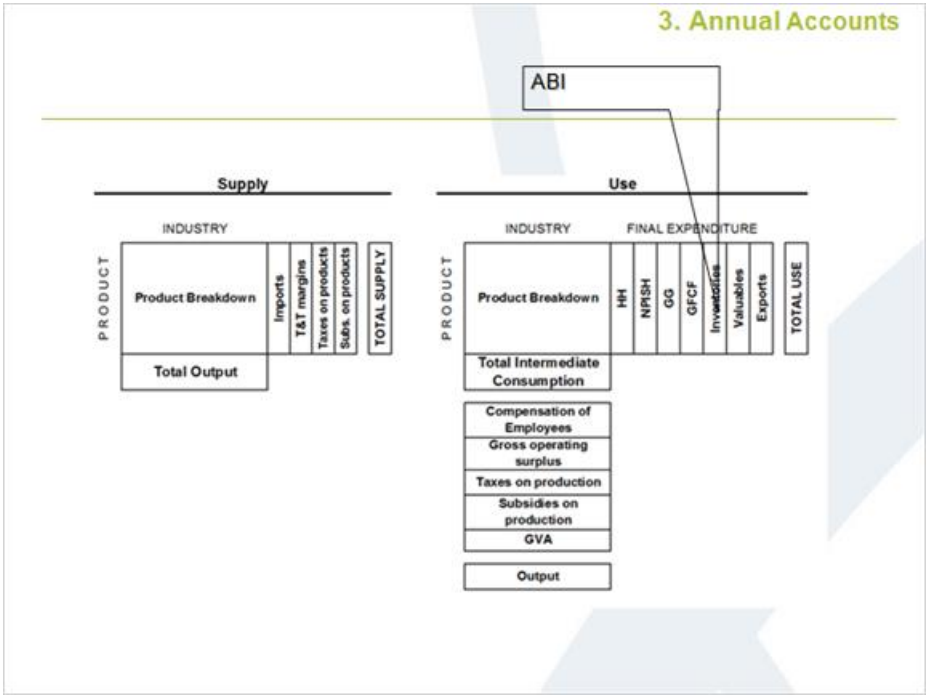
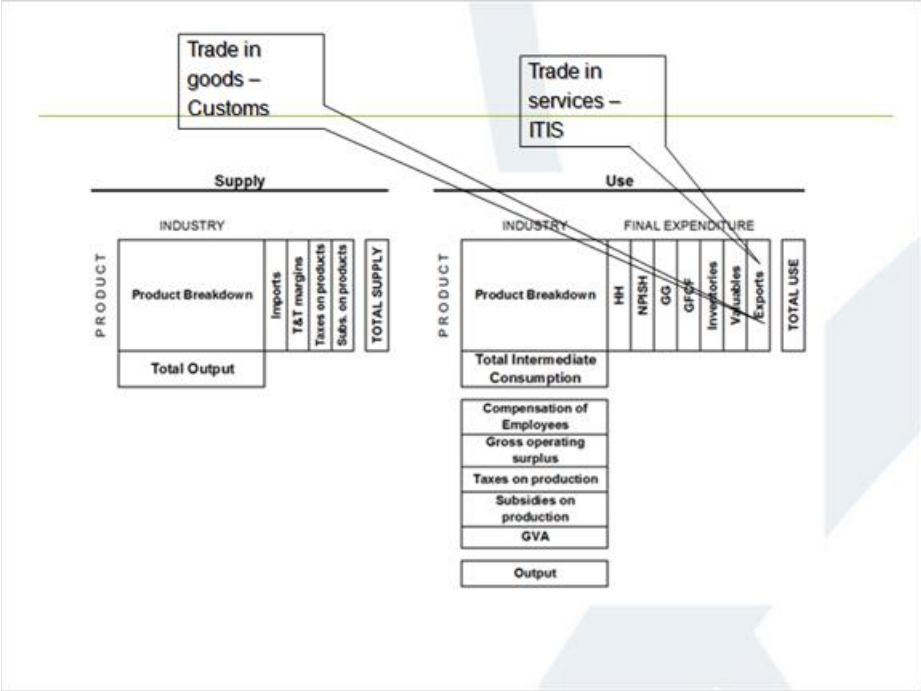


1.50 Populating the framework with source data



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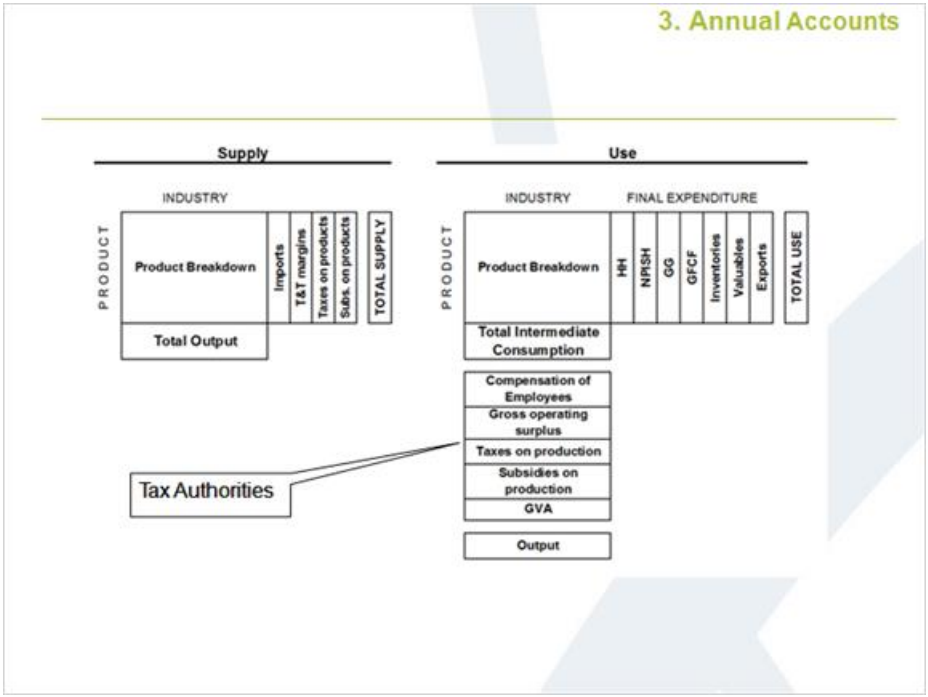
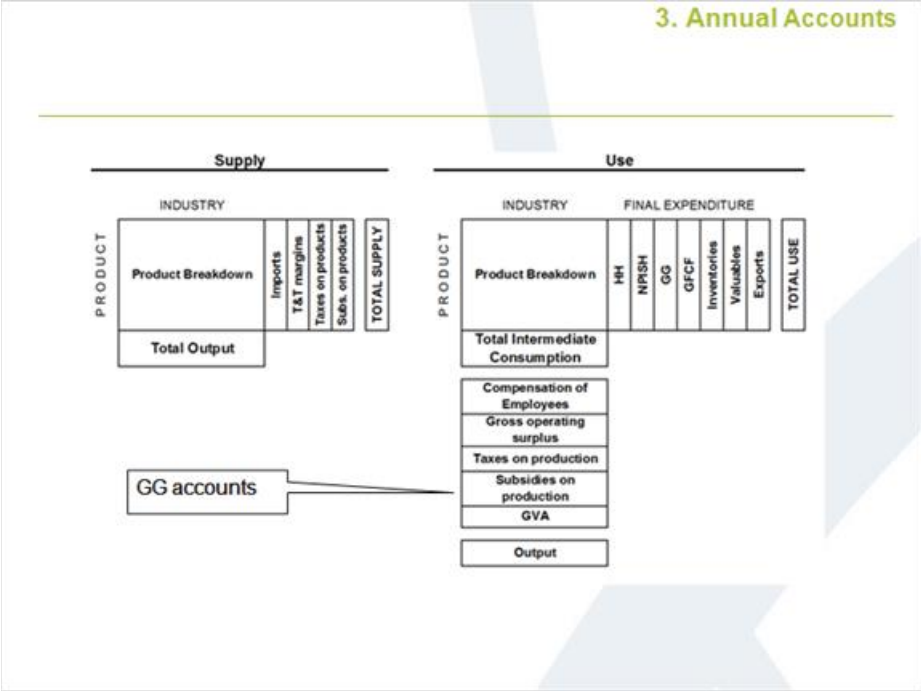
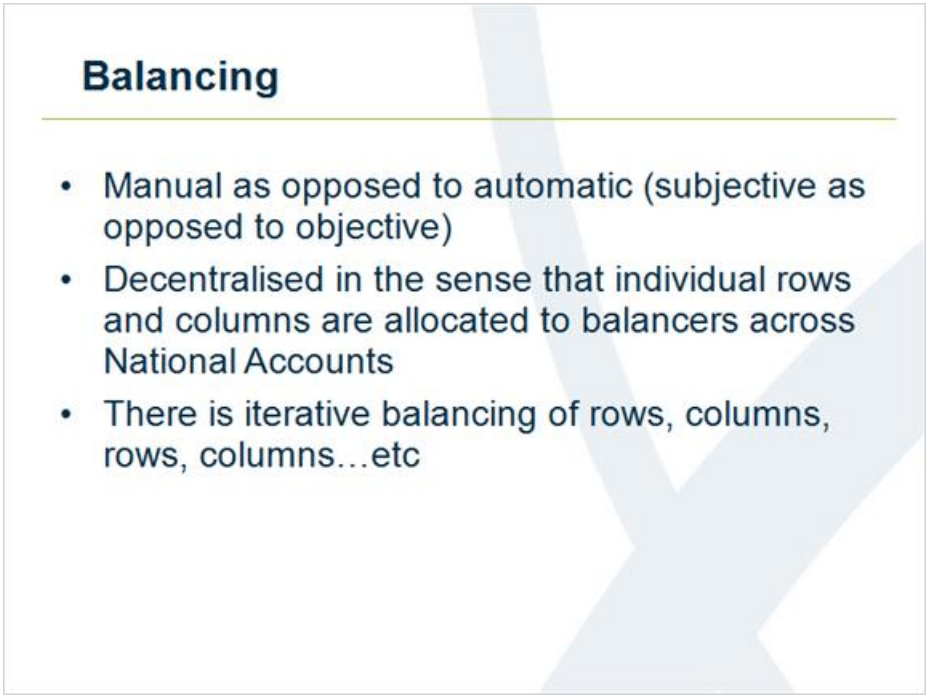


1.52 Populating the framework with source data



1.53 Balancing



1.54 3. Annual Accounts

Office for National Statistics

3. Annual Accounts

c) Revisions analysis from GDP M1 to …

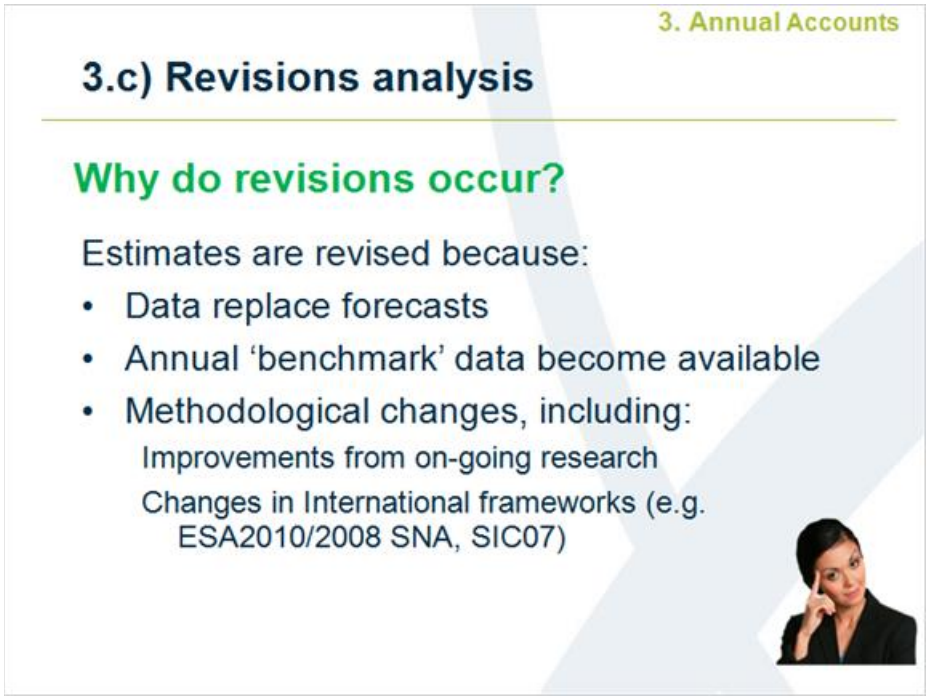
1.55 Revisions: good or bad?

3.c) Revisions analysis

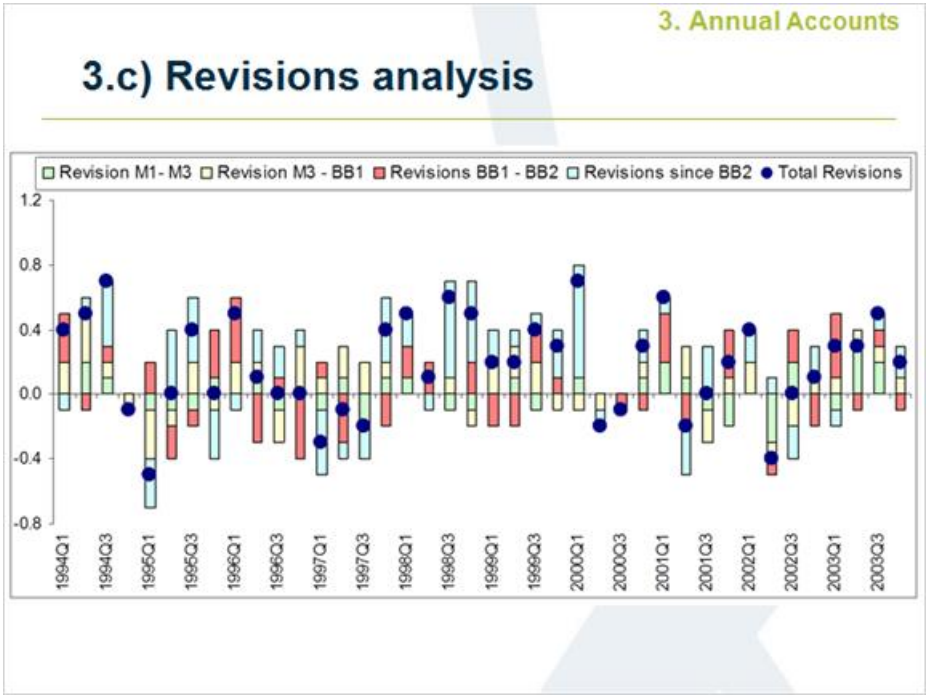
Revisions: good or bad?

- Trade-off between timeliness and reliability
- Revisions are an expected part of the statistical process
- Timeliness of the preliminary release is consistent with the stated needs of main users

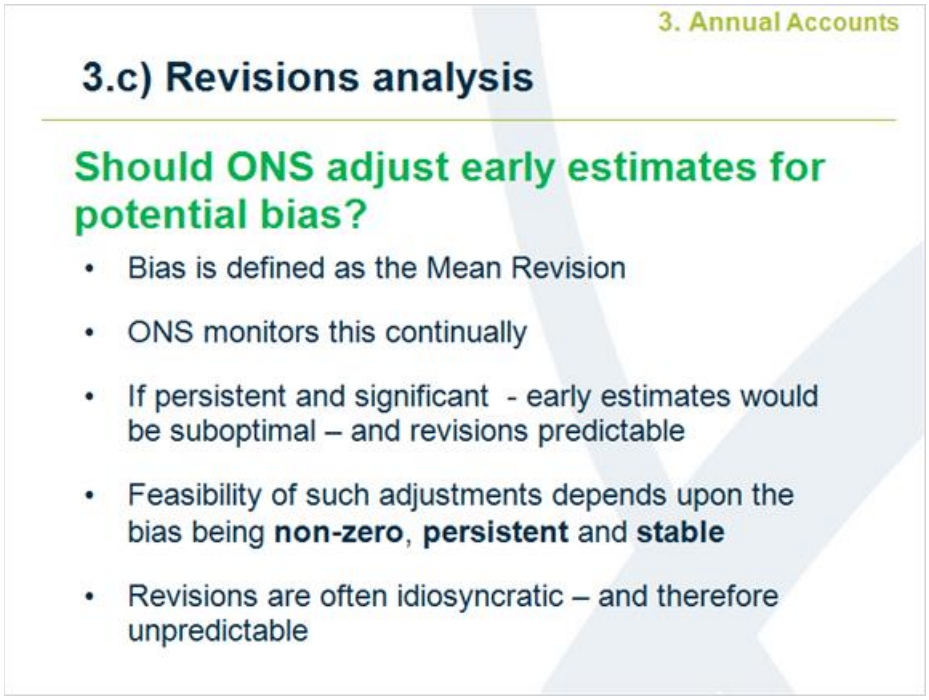
1.56 Why do revisions occur?



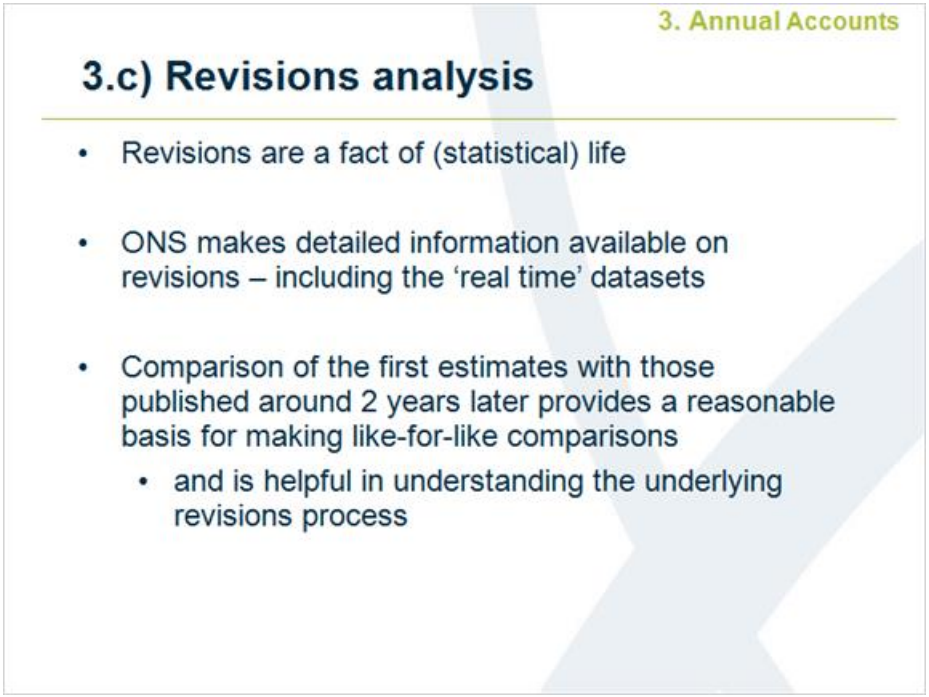
1.57 Revisions analysis



1.58 Should ONS adjust early estimates for potential bias?



1.59 Revisions analysis



1.60 Process Table – based on Year 2000

Data Sources and adjustments Process Table – based on Year 2000

Compilation of GDP	Basis for NA Figures				Adjustments			Final Estimate
	Survey	Adm. Data	Extrap. Models & Other	Total	Data Validation	Exhaustiven. & Conceptual	Balancing	
Production Approach	67%	22%	10%	99%	-3.1%	4.8%	-0.4%	100%
Expenditure Approach	59%	23%	17%	98%	0.3%	0.5%	0.9%	100%
Income Approach	54%	30%	13%	97%	-2.3%	5.6%	0.1%	100%

Source: Akritidis L. 'Accuracy assessment of National Accounts statistics', Economic Trends, 2002

1.61 Process Table – GDP production

Data Sources and adjustments Process Table – GDP production

- Cut-off adjustments are made to fill the gap of data below a threshold level. For example, some SBS type surveys do not cover small enterprises below 20 employees, or tax records do not contain information for enterprises below the legally imposed level of turnover tax threshold.

N3	**Producer is not obliged to register**
N4	**Registered legal person is not included in statistics**
N5	**Registered entrepreneur is not included in statistics**

1.62 Process Table – GDP production

Data Sources and adjustments
Process Table – GDP production

- Explicit exhaustiveness adjustments are all adjustments explicitly made to ensure exhaustiveness of the accounts in line with the criteria laid down in the Commission Decisions 94/168 on exhaustiveness and 98/527 on VAT fraud.

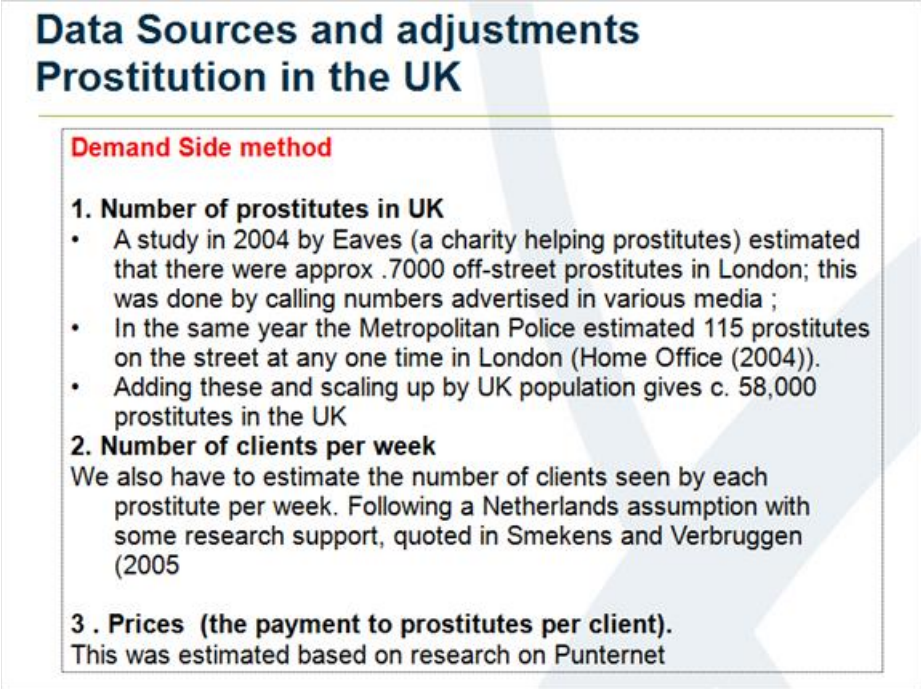
N1	**Producer should have registered (underground producer)**
N2	**Illegal producer that fails to register**
N6	**Mis-reporting by the producer**
N7	**Statistical deficiencies in the data**

1.63 Process Table, examples of exhaust

Data Sources and adjustments
Process Table, examples of exhaust. Adj.,

- N1 – From 1994 this Off-trade smuggled Alcoholic beverages and Tobacco estimates are calculated using HMRC volume and prices information.;
- N2 - illegal drugs and for prostitution services;
- N3 - This corresponds to own account production for final use by non-market producers;
- N5 - not registered partnership in order to avoid taxes thus not in ABS
- N4 - This is to take account of contractors not on the IDBR (mostly self-employed below the IDBR threshold) carrying out improvement activity, W+S below tax threshold, Juveniles non-insured;
- N6 – undeclared employment income in the PAYE system;
- N7 – Remuneration in Kind (like: ESO, meals, rent of dwellings, cars); Tips sourced from HMRC.

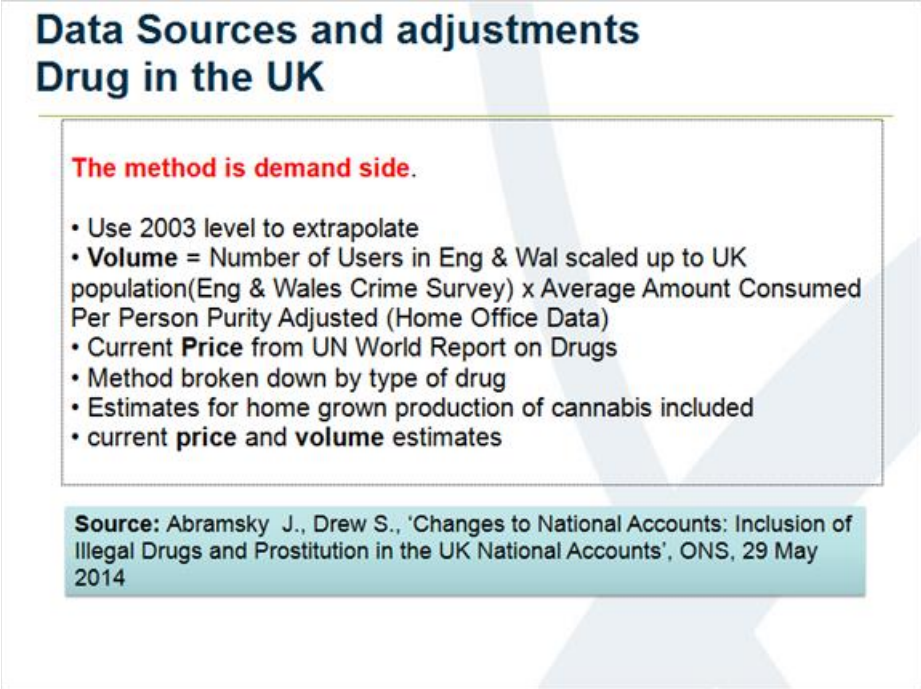
1.64 Prostitution in the UK



Notes:

N1 - From 1994 this Off-trade smuggled Alcoholic beverages and Tobacco estimates are calculated using HMRC volume and prices information.
N2 illegal drugs.

1.65 Drug in the UK



Notes:

N1 - From 1994 this Off-trade smuggled Alcoholic beverages and Tobacco estimates are calculated using HMRC volume and prices information.
N2 illegal drugs.

1.66 Thank you

Notes: