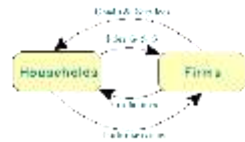
The Measurement of National Income

The Income/Output/Expenditure Method

- In this unit we will be considering the three different methods of measuring national income.

a) National Income
b) National Output
c) National Expenditure



Income

Income is a payment received for the hire of __________________________. Therefore income consists of __________________ received by workers, __________________ received by the owners of land and property and __________________ received by entrepreneurs.

Output

Output measures the value of the output of the ________________________. You have to measure the value of the final output of industry. Final output is the goods and services which are either purchased by _________________ or used as capital goods by _______________________. A can of tomatoes bought in a supermarket would be an example of final output.

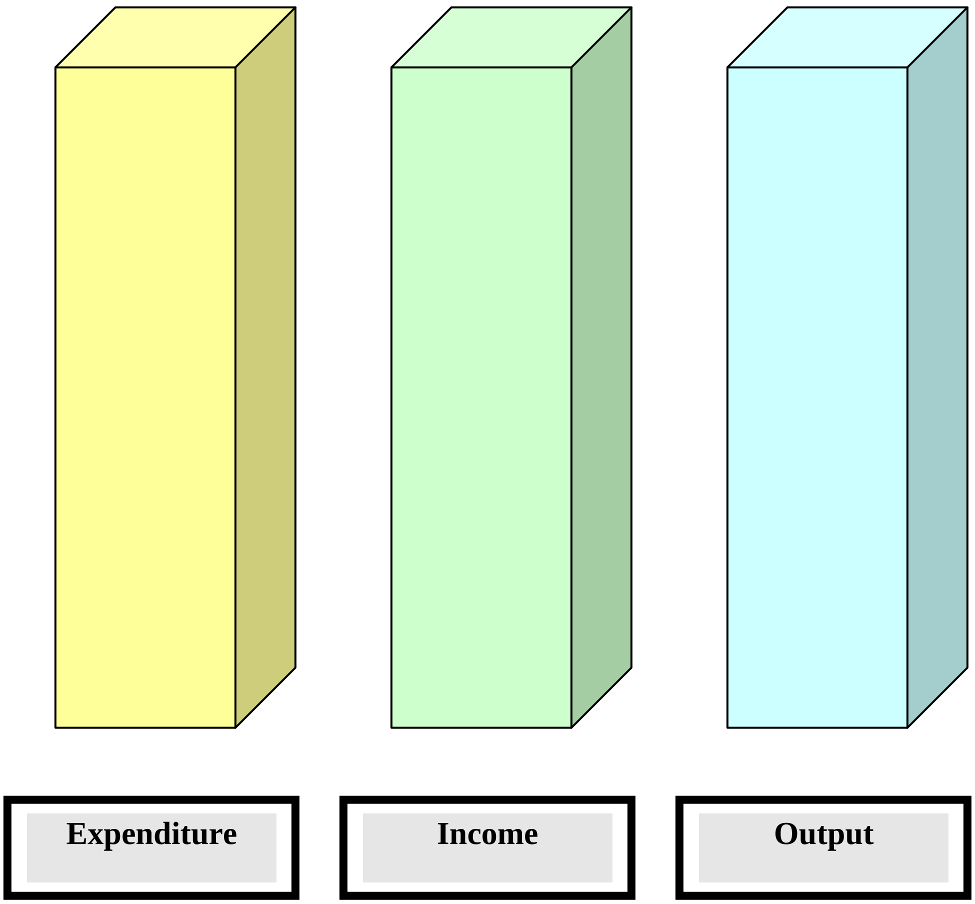
Expenditure

There are various types of spending in the economy.

- Consumption ____
- Investment ____
- Government Spending ____
- Net Exports ____

This spending occurs at market prices. In order to equate national expenditure with national income we have to deduct ________________________.

There are **three** diagrams below that illustrate the income/output and expenditure method of measuring national income. Put the correct labels in the correct column of the table.



Consumption	***Finance, Banking***	***Construction***
Employment Income	***Transport***	***Surplus of public corporations***
Agriculture, Forestry and Fishing	***Education***	***Defence***
Investment	***Health***	***Manufacturing***
Self employment Income	***Government Spending***	***Rent***

Net Exports	***Profit***	***Distribution***

Expenditure	***Income***	***Output***

Calculating real GDP using the expenditure method

Use the figures in the table below to calculate the level of real GDP using the expenditure methods

	$billion
Govt spending on goods and services	500
Gross investment	300
Exports	250
Consumer spending	900
Imports	300
Saving	120

The difference between GDP and GNP/GNI

- The most common way of expressing national **income/output/expenditure** is to use the measurement called real GDP.

- What does **G.D.P**. actually mean?

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1. There are however other different ways of expressing national income. These include:-

- **Gross National Income/Product**
- **Net National Income/Product**

2. Using the diagram on the next page we will identify the difference between the different measurements.

3. What is the difference between Gross **Domestic** Product and Gross **National** Product/Income?

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- Where do companies (e.g. General Motors) located abroad send their interest and profit payments? (e.g. a U.S. car factory in Uganda)

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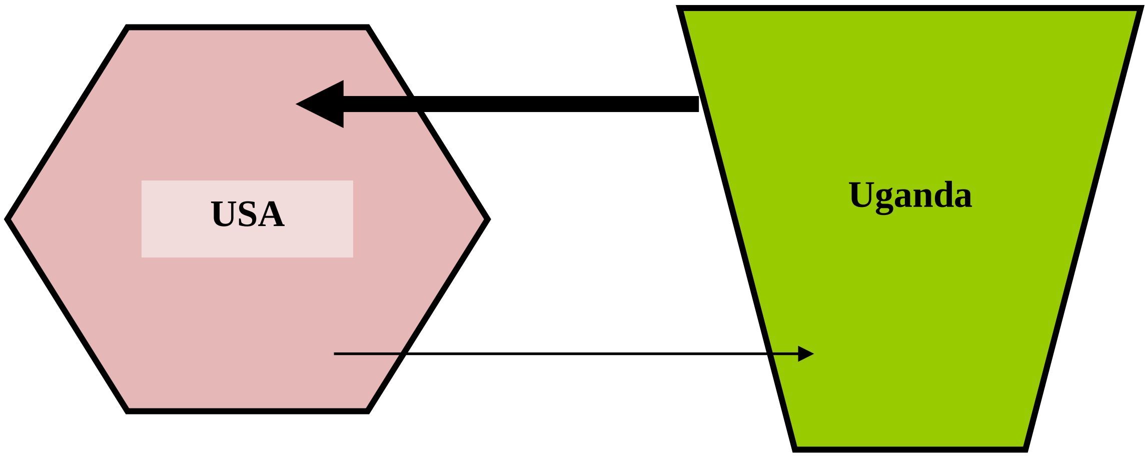

- Will the figure for **net property income** from abroad be positive or negative for a country such as the U.S?

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- Why might the figure be **negative** for a country such as Uganda?

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4. From the list below select the most likely type of property income. (State whether the money is entering or leaving the nation)

    - ***Japan builds a car factory in Bern.*** ___________________________________
    - ***Swiss citizen buys shares in an Italian Car Company.*** ______________________
    - ***Japanese citizen has a bank account in Geneva.*** ___________________________

5. How might we define '**Gross National Product/Income'**?

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6. Why are both measures used? (**I.E. Domestic and National**)

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7. The value of capital goods (**machines**) are included in the National Income statistics.

- What is the term used when a machine wears out or loses some of its value

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- If all capital goods are included in the national income statistics then what is the term used?

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- What is the term used if ___________________ is subtracted ?

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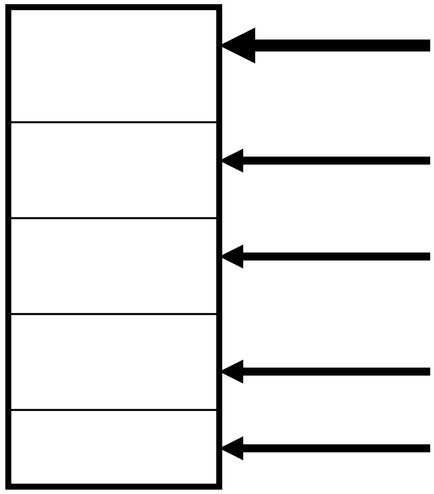
12. What is the value of a good at **factor cost**? Illustrate on the diagram below



13. Imagine that you go to a shop and buy a new tyre for your car. The price of the tyre is **£35.25.** What would the price of the tyre be without value-added-tax included? (**17.5%**)

14. What is the difference between this measurement and the measurement for **market prices**?

15. Can the value of output at **market prices** ever be lower than the value for **factor cost**?

Nominal and Real GDP

16. What is the difference between **Real GDP** and **Nominal G.D.P**.?

17. **Real GDP (**year 1) **= Nominal GDP**(year 1) **x**

$$\frac{\textbf{Price index (}\text{base year)}}{\textbf{Price index }\text{(year 1)}}$$

- The price index in any given year (e.g. year 1) is equal to 100 (price index in the base year) plus the rate of inflation.

Price deflator = $\dfrac{\mathbf{100}}{\mathbf{100 + inflation\ rate}}$

Using the figures below calculate the difference between **Nominal and Real GDP.**

GDP in 2000 (2000 = 100)	**=**	**$ 400 billion**
Nominal GDP in 2010	**=**	**$1200 billion**

- Let us assume that prices on average had risen by **40% in that period (inflation rate of 40% between 2000 and 2010).** Calculate the <u>Real GDP</u> in the year 2010.

18. What is **GDP per capita** and how is it calculated?

19. The real GDP of Switzerland in 2010 was approximately **$500 billion**. It has a population of approximately **8 million**. What is its **real GDP per capita**?

Why do we measure national income statistics?

1) ____

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2) ____

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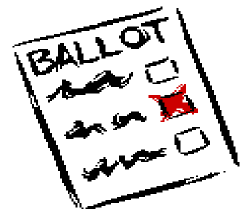

3) ____

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4) ____

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What are the limitations national income statistics?

5) We now need to consider whether or not the national income statistics are accurate or not. There are several factors which can make the statistics less accurate.

- *There are statistical inaccuracies*
- *Money earned in the Black/Hidden Economy is not included.*
- *Home produced services*
- *The public sector*

6) How many income tax returns do the government have to process every year from self employed individuals and businesses?

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7) Why might this lead to errors?

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8) What does it mean if a builder, workmen or anybody providing a service agrees to do a job for cash?

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9) Give examples below of businesses that have done jobs for cash.

- ______________________________
- ______________________________
- ______________________________
- ______________________________
- ______________________________

10) Why do the above businesses prefer to do jobs for cash rather than accept a cheque or credit card?

- Tax

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- Ability to trace

10) How large is the Black Economy as a percentage of the legal economy in some countries?

11) What domestic services do individuals or families perform for themselves that could be outsourced to a professional?

12) What impact do these home produced services have on a nation's national income?

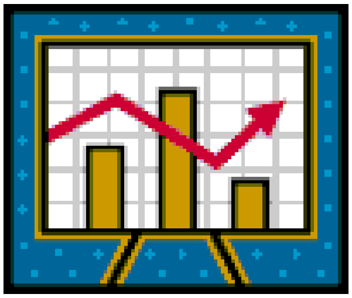
Look at the following public sector services and explain why it is difficult to measure their output. You should also explain how the government **does** value them.

Comparing the national income of a nation over time

- As economists it is interesting to compare the level of national income today to the level of national income 20 or 30 years ago.

- There are several factors that make it more difficult to compare national income over time.

- These are :-



- **Inflation calculations**
- **The accuracy of statistics**
- **Changes in population**
- **Quality of goods and services**
- **Defence expenditure**
- **Consumption and Investment**
- **Externalities**
- **Income Distribution**

1) Why might the government wish to compare national income figures over time?

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2) Why is it important to compare national income figures measured in **constant prices** rather than **current prices**?

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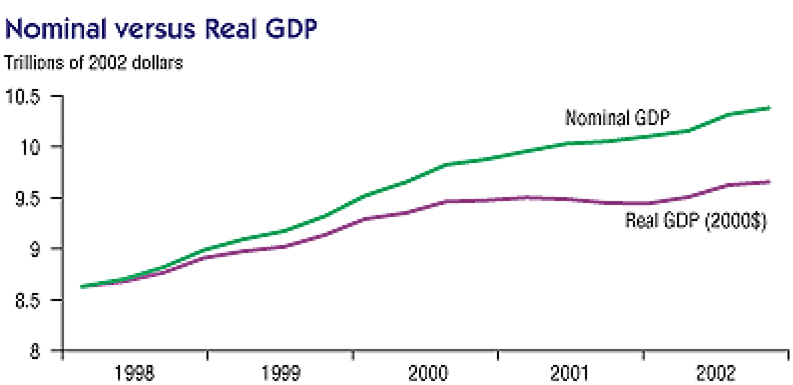
3) Use the diagram below to identify and explain the difference between real and nominal G.D.P.

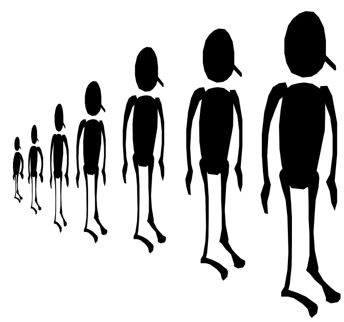


4) Why might the methods used to calculate inflation and national income lead to statistical inaccuracies when it comes to comparing national income over time?

The Basket of Goods

Weightings

5) Why is it essential to measure per capita income when making time comparisons?



6) Look at the two cars below

- Using the two cars as an example can you explain what has generally happened to the quality of goods and services over time?

7) Do National Income statistics reflect the change in quality?

8) What has happened to the average price of the following items (in nominal terms)

- **Computers**
- **DVDs**
- **CDs**
- **Televisions**
- **Clothing**

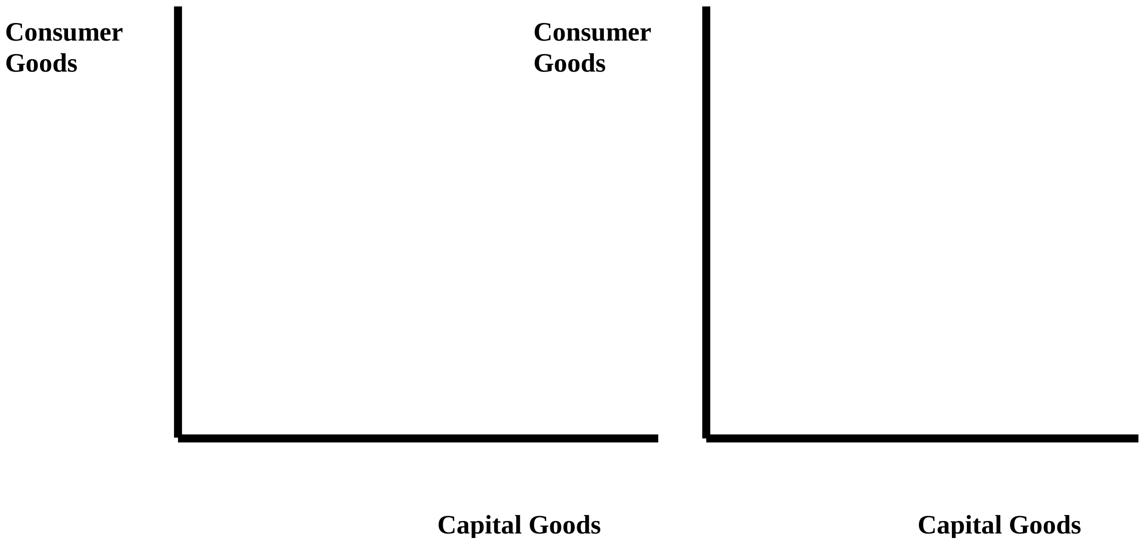
9) How would the fall in price be reflected by the National Income statistics?

10) During the Second World War what happened to the real G.D.P. of the United Kingdom and many other European Countries and why?

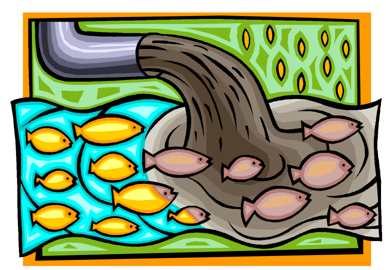
11) Does this increase in national income represent an improvement in living standards?

12) On the on the next page illustrate how foregoing consumption today can lead to higher living standards in the future.

- Why is a consumer driven boom not a good indication of living standards?



13) Explain using the term **externalities** why although national income has doubled over the last 25 years the actual standard of living may not have increased by as much as that.



14) Over the last 50 years what has happened to the distribution of income in most Developed Countries?

15) Why does this mean that an increase in national income might not reflect an improvement in living standards for the average citizen?

16) In the table on the next page summarise the different reasons why national income comparisons over time can be problematic.

Reason	Explanation
Prices	
Accuracy of Statistics	
Population changes	
Quality of goods and services	
Defence spending	
Consumption and Investment	
Externalities	
Income Distribution	

Comparing the national income of a nation over time

- As well as comparing national income over time we might wish to compare national income between **nations**.

1) Why might this be difficult?

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2) How might we overcome this problem?

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3) What do you understand by the term **purchasing power parity**?

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For instance: Imagine that the exchange rate between **the Euro and the CHF** is:- **1 € = 1.3 CHD ,** then for purchasing power parity to exist **1€** must buy ___________________ of goods and services in the Eurozone (e.g France) that one can buy with **1.3 CHF** in Switzerland.

- In this example the Real G.D.P. (national income) of the 2 nations is as follows

500 billion CHF = Switzerland.

1000 billion € = France

- However to compare the national income of different nations, we usually convert into Dollars. We will use the following exchange rates. (**<u>market exchange rates</u>**)

1 CHF = $1.2

1 € = $1.5

- ______________________ **= Switzerland**
- ______________________ **= France**

- This gives us a GDP comparison at **market exchange rates**. However we actually find that the following exchange rates **represent purchasing power parity** and better reflect the cost of living in Switzerland and France.

1 CHF = $0.5

1 € = $1

- ______________________ **= Switzerland**
- ______________________ **= France**

4) What does this illustrate about the potential problems of comparing national income between nations?

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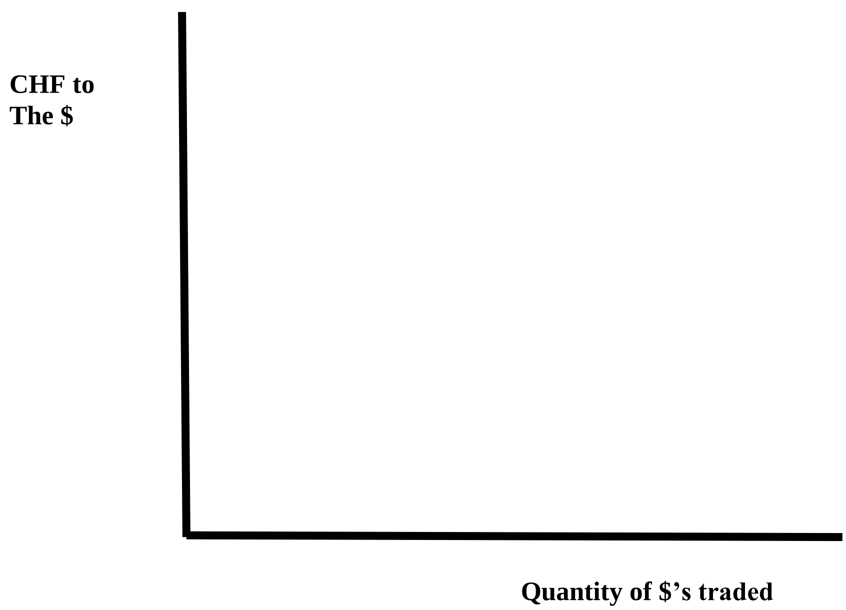
Purchasing Power Parity Review

- Imagine that the exchange rate between the dollar and sterling is

$1 = 0.8 CHF

5) Let us imagine that you can buy more with **$1** than you can buy with **0.8 CHF**. What will happen to the exchange rate between the two countries?

6) Illustrate this on the diagram below.



Green GDP

Green GDP is a measure of national income that takes environmental costs into account. This concept was first introduced by China in 2004 and it published Green GDP statistics in 2006.

Gross Domestic Product is considered to undervalue the contribution of nature to human wellbeing and is ill suited for measuring sustainable development.

1) Can you illustrate the above argument using the example of an oil spill?

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2) Therefore, Green GDP is equal to

____

3) Which environmental factors are considered when calculating ‘Green GDP’?

- ____
- ____