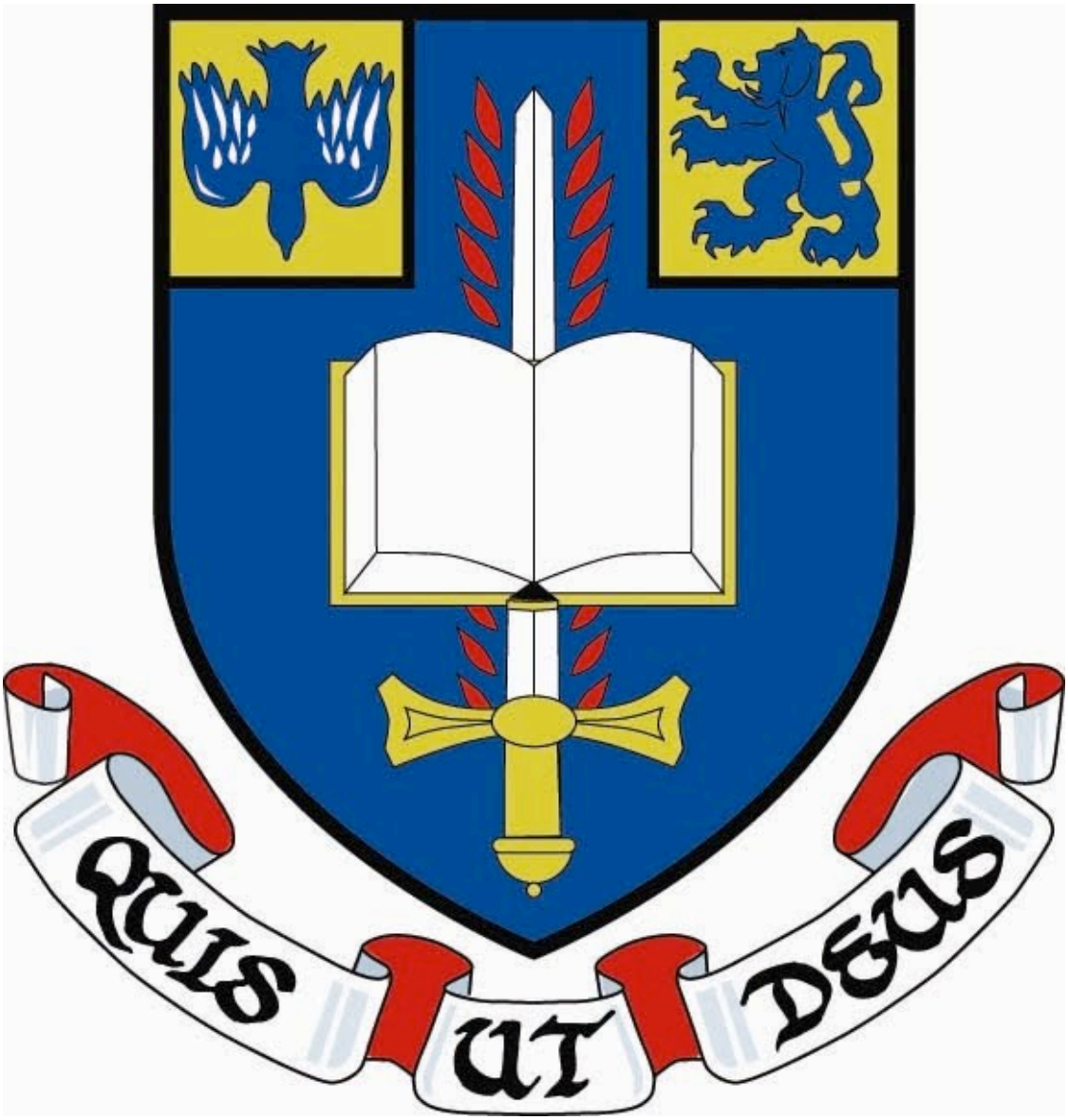
National Income

Mr Traynor©

Economics
Note 12 • Leaving Cert • 6th Year



National Income

When you finish college and start looking for a job, your experience will, to a large extent, be shaped by the prevailing economic conditions that exist at the time. If the economy is doing well, companies tend to be increasing the amount of goods and services that they produce and , in order to do that, they tend to be hiring more workers. If the economy is doing poorly, firms tend to be reducing the amount of goods and services that they produce and may be firing workers.

In each of these scenarios, it is not just one or two firms that we are talking about but the economy as a whole. Every firm and household, every producer and consumer makes up the economy. The study of the economy as a whole is known as Macroeconomics

Macroeconomics: Macroeconomics is the study of the economy as a whole.

When the economy is doing well, more goods and services are produced and on average people are richer. When the economy is doing poorly, less goods and services are produced and on average people are poorer. Economists have become especially interested in the Output of a nation. When we say output we mean the total value of all goods and services produced. Economists call the total amount of output produced in an economy in a year National Income.

National Income (Y): The income accruing to the permanent residents of a country from current economic activity during a specified period of time, usually a year

Notice that I said we call the total amount of Output, National Income. It is fundamentally important to realise that output, the quantity and quality of goods and services produced by society, defines the current wealth of a nation. The more output a society produces, the richer its residents are.

The total amount of output (the quantity of goods and services) that a country produces constitutes its ultimate budget constraint. Like Robinson Crusoe, the sailor stranded on the island, a country can only consume, or use, or enjoy what it produces.

However, a country can (for a limited period at least) use more output than it produces. It does this by borrowing the difference from foreigners. This borrowing will have to be paid back, which that at some point in the future will have to consume less than it produces, in order to pay back the amount it borrowed.

It is large volumes of output, not large quantities of money that make nations prosperous. A national government could print and distribute all the money it wanted, turning all its residents into millionaires, but collectively as a nation, these residents would be no better off then they were before unless national output (the quantity of goods and services produced by the factors of production) increased as well. And even with all that money, if national output declined, these residents would find themselves worse off.

A Story to Help Understand

Ok, at this stage we should realise that it is the value of goods and services produced by society that defines how rich a nation is. We use price to measure the value of goods and services produced by society. But how do economists measure National Income? To answer this question lets look at the following story.

Suppose that there is an economy that consists of only two people, Jonny and Gav. Now suppose that Jonny produces a bike worth €100. He then sells that bike to Gav who pays Jonny €100 for the bike. That was the only transaction that took place in the economy. What is National Income?

Before we answer this question, lets just quickly recap on what has happened.

OUTPUT: The value of output produced in this economy was the bike worth €100.

EXPENDITURE: The amount of money spent in the economy was €100 by Gav when he bought the bike.

INCOME: The amount of income earned in this economy was €100 earned by Jonny when Gav paid him for the bike.

Do we notice anything about National Output, National Expenditure and National Income?

They are all the same and to answer the question, National Income for this economy is €100.

As we can see from the above example

NATIONAL INCOME = NATIONAL EXPENDITURE = NATIONAL OUTPUT

You would be forgiven for thinking that this is some sort of random coincidence but it is not. These three figures should always equal each other and if you think about it makes sense.

National Income = National Expenditure

If someone earned some money that means that someone else must have spent that money for the other person to have earned it.

National Expenditure = National Output

If someone spent money, then they must get something for their money, otherwise it is not an economic transaction but a charitable donation.

National Output = National Income

If somebody makes something that they don't plan to keep for themselves, they are not going to give it away for free (again, unless it is a charitable donation), they are going to want payment equal to the value or the worth of their produce.

As we can see, each of these numbers are the same. Now we are going to look at a more in depth example.

Another Story to Help Understand

The goal of National Income Accounting is to measure the value of all output that a nation produces over a particular period of time usually a year. The most widely accepted measure of output (National Income) is Gross Domestic Product (GDP). In Ireland we use Gross National Product (GNP) but we will come to these differences later. In order to understand what National Income is, it is first necessary to figure out how it is measured.

The Central Statistics Office (CSO) is the Irish government body responsible for measuring the National Income of Ireland.

It has three measures available to it to do this.

1) The Output Method
2) The Expenditure Method
3) The Income Method

Before we look at each of these measures individually we will look at a concept called "Double Counting".

Double Counting

The central challenge in measuring National Output (GDP/ GNP) is to avoid counting the same output more than once. It might seem obvious that total output should simply equal the value of all goods and services produced in the economy but it is not that simple. If you were to count every good and service produced, that would mean that you would end up counting the same output again and again. This would overstate the value of National Income (GDP/ GNP). Lets look at an example.

- Imagine that Traynor's forestry company, cuts down trees in a forest that it owns and sells these trees to Duffy's furniture company for €1,000.
- Duffy's Furniture Company cuts and sands the wood and fashions it into chairs and a table that it then sells on to Skehan's retailers for €2,500.
- Skehan's retailers then sells the chairs to customers for €3,000.

What is National Income?

If you add up the sales price of each of the transactions, you get

€1,000 + €2,500 + €3,000 = €6,500

This result of €6,500 would overstate the value of National Income (GDP/ GNP) due to double counting.

This is because

- It would count the value of the lumber three times (in all three transactions)
- And, it would count the value of the carpentry twice (in the final two)

Refering to this example we will now take a look at the three different methods that a government can use to measure National Income.

NATIONAL INCOME = NATIONAL EXPENDITURE = NATIONAL OUTPUT

The Output Method

A great way to avoid the double counting counting problem when calculating National Income is to focus on the value added. That is only count the new output created at each stage of production. It is for this reason that the Output Method is also called the "Value Added Method".

If a tailor bought an unfinished shirt for €50, sewed on buttons costing €1 and then sold the shirt for €60, we would not say that he created €60 worth of output. We would say he added €9.

Value Added = €60 - €51 = €9

The Selling Price — Cost of Materials (Shirt and Buttons) — Value Added

The Output Method is the sum of the sales price of a good or service minus the cost of all non - labour inputs used to produce it.

Lets look back at our furniture example.

- As Traynor's forestry company had no labour inputs, it added €1,000 of output to the economy.
- Duffy's Furniture Company had non - labour input costs of €1,000 (the amount it paid to Traynor's Forestry Company) and sold the furniture for €2,500. So Duffy's furniture Company added

€2,500 - €1,000 = €1,500

€1,500 worth of output to the economy

- Finally, Skehan's Retailers had non - labour input costs of €2,500 (the price it paid to Duffy's Furniture Company) and sold the furniture for €3,000. So Skehan's Retailers added

€3,000 - €2,500 = €500

€500 worth of output to the economy.

If you add up the value of the extra output at each stage of production (€1,000 + €1,500 + €500) you find that a total of €3,000 worth of output has been added to the economy. This is the Output Method.

The Expenditure Method

Another and far simpler method to avoid the double counting problem is to just count the sales of "final goods" or "finished goods" only. When Wernham Hogg paper company makes paper, which Hallmark then uses to make a greeting card, the paper is called an intermediate good and the greeting card is called a final good.

Using the Expenditure Method, only the value (the price) of final goods are included. The reason is that the value of the intermediate good is already included in the value of the final good. Adding the market value of the paper to the market value of the card would be double counting and would (incorrectly) count the paper twice.

Going back to the furniture example, seeing that consumers paid Skehan's Retailers €3,000 for the final table and chairs, we can conclude that €3,000 worth of output was created and this is our National Income. Note that this is exactly the same answer we got when using the Output Method.

The Income Method

As we have already said, an economy's income is equal to it's expenditure. This is because every economic transaction has two parties. A buyer and a seller. Every euro of spending by some buyer is a euro of income to some seller. The Income Method adds up the income received by all the factors of production. This is because the factors of production are responsible for producing the economy's output.

Specifically, the income received by the economy's factors of production are

- Rent is received by the owners of Land
- Wages are received by workers (the owners of Labour)
- Interest is received by the owners of Capital
- Profit is received by Entrepreneurs (the owners of Enterprise)

National Income can be found by adding up all wages, salaries, interest, dividends, rent, profits and royalties. After a few adjustments are made, Total Income will equal Total Expenditure.

If we look at the furniture example we see that

- Traynor's Forestry Company Income = €1,000
- Duffy's Furniture Company Income = €1,500
- Skehan's Retail Company Income = € 500
- National Income = €3,000

Either way we calculate National Income for the furniture example we see that it is €3,000.

Adjustments

As stated previously, there are some adjustments that need to be made in order to get an accurate depiction of National Income.

1) **Stock Appreciation:** If the value of the stock of goods owned by companies and farms rises, then this overstates the actual profits made from production. A figure equal to the rise in the value of stocks must be deducted. Similarly, if the value of stocks falls, then profits from actual production are understated. A figure equal to the fall of the value of stocks must be added on.
2) **Financial Services:** This is the excess of interest and dividends received by financial institutions over payments of interest to depositors. The reason for making this adjustment is that interest and dividends received by the banks less the interest paid to depositors is considered to be the cost of providing the service to customers. As such, it should not be included in profits.
3) **Income in Kind:** Incomes in kind are included in National Income.

Income in Kind: is income received in a non - monetary form

or

Income in Kind: is any payment made in the form of goods and services

E.g. A salesperson who has the use of a company car.

The reason that this is included is because this is a payment that the factor of production receives for the production of goods and services and as such should be included in National Income.

4) **Transfer Payments:** Transfer Payments are not included in National Income.

Transfer Payments: Payments received for which no factor of production has been supplied

or

Transfer Payments: Income which people receive for which they did not supply goods or services.

E.g. The dole, children's allowance, student grants, charitable donations

As no output is produced or no factor of production is supplied in return for these payments, they do not represent any increase in societal wealth (Which GNP is designed to measure) but they are a transfer of wealth from one portion of society to another. They are “received” but not “earned”.

Different Names for National Income

When talking about National Income, the most important thing to remember is that all we are doing is adding up the value of the goods and services produced in an economy.

So, when talking about Ireland, to find National Income we should add up the total value of all goods and services produced in Ireland and this gives us our National Income. This makes economic sense.

But then we realise that there are many foreign owned companies that produce goods and services in Ireland and repatriate profits earned here back to their country of origin. We as Irish people don’t get to keep that money, so should these repatriated profits be taken away from Irish National Income. Probably yes. But if we did this we would get a different answer to the method above and that also seemed a good way to measure National Income.

Also, during the year, many machines become broken and either have to be repaired or thrown away and new ones bought (depreciation). Should the money spent on replacing or repairing these machines be taken away from National Income as they have not produced anything new, they just replaced machines that broke during the production process. Well yes, but if we did that we would get a different answer again for National Income. So what do we do?

In order to get around these different issues, economists calculate different values for National Income and they call them different things.

In order to get from one measure of National Income to another, it is simply a matter of some addition or subtraction. The table on the next page should make it clearer.

Gross	Domestic Product	@ Current Market Prices
- Depreciation	+/- Net Factor Income from the Rest of the World	+ Subsidies - Indirect Taxes
Net	National Product	@ Factor Cost

We will start off at the top of the table and work our way through

Gross Domestic Product @ Current Market Prices: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year at current market prices.

or

Gross Domestic Product @ Current Market Prices: The output produced by the factors of production in the domestic economy irrespective of whether the factors are owned by Irish nationals or foreigners at current market prices.

Either definition is perfectly acceptable so just learn off the one that you find the easiest.

From Gross to Net and Back Again

In order to get from Gross Domestic Product @ Current Market Prices to Net Domestic Product @ Current Market Prices you take away depreciation.

Net Domestic Product @ Current Market Prices: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year at current market prices, once depreciation has been taken into account

Depreciation: is the amount of capital that is used up or worn out i the production process.

Depreciation represents the amount of money that must be spent by an economy just keeping the factors of production at their current levels.

In order to get from Net Domestic Product @ Current Market Prices to Gross Domestic Product @ Current Market Prices you add depreciation.

See the next page for examples

Example	**Solutions**	
1) GDP @ Market Prices is €200m Depreciation is €20m Calculate NDP @ Market Prices	1)	GDP = 200 Dep = -20 Ans = €180m NDP = 180
2) GDP @ Market Prices is €371m Depreciation is €64m Calculate NDP @ Market Prices	2)	GDP = 371 Dep = -64 Ans = €307m NDP = 307
3) GDP @ Market Prices is €128m Depreciation is €12m Calculate NDP @ Market Prices	3)	GDP = 128 Dep = -12 Ans = €116m NDP = 116
4) GDP @ Market Prices is €816m Depreciation is €78m Calculate NDP @ Market Prices	4)	GDP = 816 Dep = -78 Ans = €738m NDP = 738
5) NDP @ Market Prices is €217m Depreciation is €17m Calculate GDP @ Market Prices	5)	NDP = 217 Dep = +17 Ans = €234m GDP = 234
6) NDP @ Market Prices is €364m Depreciation is €99m Calculate GDP @ Market Prices	6)	NDP = 364 Dep = +99 Ans = €463m GDP = 463
7) NDP @ Market Prices is €789m Depreciation is €34m Calculate GDP @ Market Prices	7)	NDP = 789 Dep = +34 Ans = €823m GDP = 823
8) NDP @ Market Prices is €500m Depreciation is €7m Calculate GDP @ Market Prices	8)	NDP = 500 Dep = +7 Ans = €507m GDP = 507

From Domestic to National and Back Again

In order to get from Gross Domestic Product @ Current Market Prices to Gross National Product @ Current Market Prices, you either add or subtract Net Factor Income from the Rest of the World.

Gross National Product @ Current Market Prices: It is the value of total output / expenditure valued at today's market prices, produced by Irish owned factors of production, before any adjustments are made for taxation, subsidies or depreciation.

Or

Gross National Product @ Current Market Prices: It is the value of the total goods and services produced in an economy in a year valued at current/today's market prices, produced by Irish owned factors of production.

Net Factor Income from the Rest of the World: This is the difference between incomes earned by foreign factors of production in Ireland and sent abroad and income earned by Irish factors of production abroad and returned to Ireland.

As we have already said, there are many foreign firms that operate in Ireland. Foreigners have set up firms here and they employ Irish people. When these firms make a profit, not all of this profit stays in Ireland. These foreign firms repatriate (or send home) some of this profit back to their country of origin.

This money does not stay in Ireland so Irish people do not get to keep it and as such should be removed from Irish National Income.

However, there are Irish owned firms that operate in other countries. If these Irish firms earn a profit from their operations abroad, they send some of this profit back to Ireland.

This money comes into and stays in Ireland and Irish people get to keep it. As such this money should be added to National Income.

Net Factor Income from the Rest of the World	=	Profits being sent to Ireland earned by Irish Firms abroad	-	Profits being sent out of Ireland earned by foreign firms in Ireland

Examples

From the following figures, calculate Net Factor Income from the Rest of the World.

1) Profits repatriated out of Ireland €500m
   Profits repatriated into Ireland €200m
2) Profits repatriated out of Ireland €1,000m
   Profits repatriated into Ireland €300m
3) Profits repatriated out of Ireland €1,500m
   Profits repatriated into Ireland €2,000m
4) Profits repatriated out of Ireland €2,500m
   Profits repatriated into Ireland €1,750m

Solutions

1) €200 - €500 = - €300 Ans = - €300m
1) €300 - €1,000 = - €700 Ans = - €700m
1) €2,000 - €1,500 = €500 Ans = €500m
1) €1,750 - €2.500 = - €750 Ans = - €750m

Example: From the following table, calculate GNP

	2007	2008	2009	2010	2011
GDP	500	600	700	800	900
NFI	-50	60	-40	-10	-110
GNP	?	?	?	?	?

Solution

	2007	2008	2009	2010	2011
GDP	500	600	700	800	900
NFI	-50	60	-40	-10	-110
GNP	450	660	660	790	790

To get from Domestic to National you either add or subtract NFIA from GDP and this gives you GNP.

To get from GDP to GNP

1) Add Net Factor Income from the Rest of the world to GDP if NFIA is Positive. Your answer is GNP.
2) Subtract Net Factor Income from the Rest of the world to GDP if NFIA is Negative. Your answer is GNP.

To get from GNP to GDP

1) Add Net Factor Income from the Rest of the world to GNP if NFIA is Negative. Your answer is GDP.
2) Subtract Net Factor Income from the Rest of the world to GNP if NFIA is Positive. Your answer is GDP

Example

From the following table, calculate GDP

	2007	2008	2009	2010	2011
GNP	600	700	800	900	1000
NFI	-50	60	-40	-10	-110
GDP	?	?	?	?	?

Solution

	2007	2008	2009	2010	2011
GNP	600	700	800	900	1000
NFI	-50	60	-40	-10	-110
GDP	650	640	840	910	1110

You can think of GDP as the total value of goods and services produced in Ireland.

You can think of GNP as the total value of goods and services produced by Irish people.

There are a large number of foreign firms operating in Ireland which repatriate huge sums of money out of the country. This repatriation of money out of Ireland far exceeds the money repatriated into Ireland from Irish owned firms operating abroad. As such, Net Factor Income from the Rest of the World is a large negative figure for Ireland.

This large negative figure makes GDP much greater than GNP and as such, GNP is considered a more accurate measure of Irish wealth. We will look more closely at this later.

In Ireland at present, would you expect GNP to be greater than, equal to, or less than, GDP? Explain your answer

In Ireland GNP is currently less than GDP because Net Factor Income from the Rest of the World is negative. This is due to the following reasons

1) **The Repayments on the Foreign element of our National Debt:** Ireland currently has the greatest National Debt in the history of the state and the repayment of this debt is included in Net Factor Income from the Rest of the world as a large negative figure.
2) **The Repatriation of Profits by Foreign Companies resident in Ireland:** At present, foreign companies operating in Ireland repatriate more profits out of the country then Irish companies operating abroad repatriate back into Ireland. This is included in Net Factor Income from the Rest of the world as a large negative figure.
3) **The Remittances of Immigrants in Ireland sent abroad:** In Ireland we have had a huge influx of non nationals coming to the country in order to find work. As these non nationals find work and earn wages in Ireland, A large proportion of them send a portion of their wages back to their country's of origin. This is included in Net Factor Income from the Rest of the world as a negative figure.

From Market Prices to Factor Cost and Back Again

In order to get from GDP @ Current Market Prices to GDP @ Factor Cost you add Subsidies and take away Indirect Taxes.

Gross Domestic Product at Factor Cost: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year, valued at payments to factors of production.

Subsidies: are payments made from the government to a firm in order to reduce the cost of production faced by the firm

Subsidies are the payments that the factor of production receives but is not charged to the consumer. That is, subsidies are not included in the market price.

Indirect Taxes: are taxes on economic transactions or taxes on goods and services.

Indirect Taxes are a part of the market price that the consumer pays but the factor of production does not receive. Indirect taxes are paid indirectly to the government by final consumers.

Probably the best way to look at National Income is, the end payment received by Irish factors of producing for producing goods and services in society.

Therefore, in order to find out how much of the market price the factor of production gets to keep, you add subsidies and take away indirect taxes.

To get from Current Market Prices to Factor Cost you

1) Add Subsidies
2) Take away Indirect Taxes.

To get from Factor Cost to Current Market Prices you

1) Take away Subsidies
2) Add Indirect Taxes.

EXAMPLE

From the following figures calculate GDP @ Factor Cost

	2007	2008	2009	2010	2011
GDP @ Current Market Prices	600	700	800	900	1000
Subsidies	20	24	28	17	12
Indirect Taxes	80	78	89	68	54
GDP @ Factor Cost	?	?	?	?	?

SOLUTION

Don't forget, in order to get from Current Market Prices to Factor Cost you

1) Add Subsidies
2) Take away Indirect Taxes.

	2007	2008	2009	2010	2011
GDP @ Current Market Prices	600	700	800	900	1000
Subsidies	20	24	28	17	12
Indirect Taxes	80	78	89	68	54
GDP @ Factor Cost	540	646	739	849	958

EXAMPLE

From the following figures calculate GDP @ Market Prices

	2007	2008	2009	2010	2011
GDP @ Factor Cost	600	700	800	900	1000
Subsidies	30	35	39	43	47
Indirect Taxes	50	68	74	78	80
GDP @ Current Market Prices	?	?	?	?	?

SOLUTION

Don't forget, in order to get from Factor Cost to Current Market Prices you

1) Take away Subsidies
2) Add Indirect Taxes.

	2007	2008	2009	2010	2011
GDP @ Factor Cost	600	700	800	900	1000
Subsidies	30	35	39	43	47
Indirect Taxes	50	68	74	78	80
GDP @ Current Market Prices	620	733	835	935	1033

Summary of Definitions

Gross Domestic Product @ Current Market Prices: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year at current market prices.

or

Gross Domestic Product @ Current Market Prices: The output produced by the factors of production in the domestic economy irrespective of whether the factors are owned by Irish nationals or foreigners at current market prices.

Net Domestic Product @ Current Market Prices: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year at current market prices, once depreciation has been taken into account

Gross National Product @ Current Market Prices: It is the value of total output / expenditure valued at today's market prices, produced by Irish owned factors of production, before any adjustments are made for taxation, subsidies or depreciation.

Or

Gross National Product @ Current Market Prices: It is the value of the total goods and services produced in an economy in a year valued at current/today's market prices, produced by Irish owned factors of production.

Net National Product @ Current Market Prices: It is the value of total expenditure on final goods and services, valued at today's market prices, produced by Irish owned factors of production, after adjustments have been made for depreciation

Gross Domestic Product @ Factor Cost: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year, valued at payments to factors of production.

Net Domestic Product @ Factor Cost: It is the total value of expenditure within the country as a result of engaging in current economic activity in one year, valued at payments to factors of production, having made adjustments for inflation

Gross National Product @ Factor Cost: The total output produced (value of goods & services) by Irish owned factors of production in Ireland and elsewhere valued at payments to the factors of production.

Net National Product @ Factor Cost (National Income): The income accruing to the permanent residents of a country from current economic activity during a specified period, usually one year.

Real V's Nominal GDP (Current and Constant Prices)

We are now going to have a look at Real and Nominal GDP. This section is only here to help explain the importance of production of goods and services as the real indicator of wealth in the economy. You do not need to know this off by heart and do not waste your time trying to learn this off by heart. Once you **UNDERSTAND** the message of what is contained in this passage, I would advise not to read it again but go straight to the very short summary of this that will follow.

As we have seen, GDP measure the total spending on goods and services in all markets in the economy. If total spending rises from one year to the next, at least one of two things must be true.

1) The economy is producing a larger output of goods and services, or
2) Goods and services are being sold at higher prices.

When studying changes in National Income over time, economists want to separate these two effects. In particular, economists want a measure of the total quantity of goods and services the economy is producing that is not effected by changes in the prices of those goods and services.

In order to do this, economists use a measure called **Real GDP**. Real GDP tells you the value of goods and services produced this year, if prices were stuck at what they were in some year in the past. E.g. Calculating GDP for 2011 at prices from 2010. By evaluating current production using prices that are fixed at past levels, Real GDP shows how the economy's overall production of goods and services change over time. We will now look at a numerical example.

Prices and Quantities				
Year	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2008	€1	100	€2	50
2009	€2	150	€3	100
2010	€3	200	€4	150

The table above shows made up data for an imaginary economy that produces two goods only, hot dogs and hamburgers.

To compute the total spending in this economy (National Income), we

1) Multiply the quantity of hot dogs by the price of hot dogs
2) Multiply the quantity of hamburgers by the price of hamburgers
3) Add them together

See table below

Calculating Nominal GDP (Current Prices)		
Year	Calculations	GDP
2008	(€1 per hot dog X 100 hot dogs)+(€2 per Hamburger X 50 Hamburgers)	€200
2009	(€2 per hot dog X 150 hot dogs)+(€3 per Hamburger X 100 Hamburgers)	€600
2010	(€3 per hot dog X 200 hot dogs)+(€4 per Hamburger X 150 Hamburgers)	€1,200

In 2008, 100 hot dogs are sold at a price of €1 per hot dog, so expenditure on hot dogs was €100. In the same year, 50 hamburgers were sold for €2 per hamburger, so expenditure on hamburgers also equals €100. Total expenditure in the economy (National Income as measured by the expenditure method), is €200. This is the sum of expenditure on hot dogs and hamburgers during the year. This €200, the production of all goods and services valued at current market prices, is called Nominal GDP.

The table above also shows the calculation of Nominal GDP (GDP measured at current market prices) for the three years. Total spending rises from €200 in 2008 to €600 in 2009 and then to €1,200 in 2010. Part of this rise is attributable to the increase in hot dogs and hamburgers produced and part of it is attributable to the increase in the prices of hot dogs and hamburgers.

To get a measure of the amount of goods and services produced in an economy that is not affected by changes in price, we use **Real GDP**. Real GDP measures the production of goods and services valued at constant prices.

We calculate Real GDP by first choosing one year as a base year. We then use the prices of hot dogs and hamburgers in the base year to compute

the value of goods and services in all of the years. We say that the prices in the base year provide the basis for comparing quantities in different years.

Suppose we choose 2008 as the base year. We then use the prices of hot dogs and hamburgers in 2008 to compute the value of goods and services in 2009 and in 2010. See table below

Calculating Real GDP (Constant Prices)		
Year	Calculations (Base Year is 2008)	GDP
2008	(€1 per hot dog X 100 hot dogs)+(€2 per Hamburger X 50 Hamburgers)	€200
2009	(€1 per hot dog X 150 hot dogs)+(€2 per Hamburger X 100 Hamburgers)	€350
2010	(€1 per hot dog X 200 hot dogs)+(€2 per Hamburger X 150 Hamburgers)	€500

To compute Real GDP in 2008, we use the prices of hot dogs and hamburgers in 2008 (the base year) and the quantities of hot dogs and hamburgers produced in 2008. Thus, for the base year, Real GDP always equals Nominal GDP. To compute Real GDP in 2009, we use the prices of hot dogs and hamburgers in 2008 (the base year) and the quantities of hot dogs and hamburgers produced in 2009. Similarly, to compute Real GDP for 2010, we use the we use the prices of hot dogs and hamburgers in 2008 (the base year) and the quantities of hot dogs and hamburgers produced in 2010.

Looking at our example, we find that Real GDP has risen from €200 in 2008, to €350 in 2009, to €500 in 2010. As we are using Real GDP we know that this rise in National Income is solely attributable to an increase in the quantities of goods and services produced only. We know that none of this increase in National Income is attributable to an increase in any way because we have held prices fixed at base year levels.

To sum up, Nominal GDP uses current prices to place a value on the economy's production of goods and services. Real GDP uses constant base year prices to place a value of the economy's production of goods and services.

As Real GDP is not affected by changes in prices, changes in Real GDP reflect only changes in the amounts being produced. Therefore, Real GDP is a measure of the economy's production of goods and services and as such is a more accurate measure of wealth in the economy then Nominal GDP.

Real V's Nominal GDP (Current and Constant Prices)

Inflation is the general increase in price levels over time, i.e. a year. When comparing national income statistics between years, no allowance is made for inflation. This will over value economic growth within a country.

Look at the example:

Year 1
Number of Goods Produced: 10,000
Average Price: €5
GDP: €50,000

Year 2
Number of Goods Produced: 12,000
Average Price: €5
GDP: €60,000

Economic growth has occurred as the quantity of goods has increased

Year 1
Number of Goods Produced: 10,000
Average Price: €5
GDP: €50,000

Year 2
Number of Goods Produced: 10,000
Average Price: €6
GDP: €60,000

No economic growth has occurred. Inflation has caused GDP to increase

Constant Prices

A measure to compare performance over years is to select a base year, and then to calculate the value of output at the price in the base year. This will take in to account inflation.

In the example to the right, it looked like the value of output increased from €5 to €9.75.

However, we can see when using constant prices, the actual increase of real value of output is €2.50. This is the difference between year 1 and year 2 at year 1's prices.

Units		Price	Output Value
Year 1			
2	@	€0.50	€1.00
4	@	€1.00	€4.00
			€5.00
Year 2			
3	@	€0.75	€2.25
6	@	€1.25	€7.50
			9.75
Yr 2@ Yr1 prices	**(constant prices)**		
3	@	€0.50	€1.50
6	@	€1.00	€6.00
			€7.50

Uses of National Income Statistics

1) **Indication of Alterations in our**

Standard of Living: Any change in our national income figures will indicate the level of economic growth, or otherwise, within the country from one year to the next, and give a general indication of changes to the standard of living, if any. Used by trade unions to justify wage demands.

2) **Means of Comparing the Standard of Living in Different Countries:** We can use the national income statistics to compare the standard of living in our country with that of other countries.
3) **Assists the government in Formulating Economic Policy:** Governments have a greater influence on the development and growth of the economy. To effectively plan for this governments' need information about our economy such as that provided by the National Income statistics.
4) **Evaluate Economic Policy:** To assess changes to the economy and economic changes in the various sectors, and to provide a benchmark against which progress can be monitored, it is useful to have national statistics.
5) **EU Budget Contributions or Benefits:** The wealth revealed in our national income statistics will determine the contribution, if any, which Ireland must make to the EU budget. The figure will also be used within the EU to determine those countries which require financial aid from the EU and the amount of that aid.

Limitations of National Income Statistics

1) **Population Changes:** If national income grows at a slower rate than population, then national income per head decreases and the average standard of living will fall. Hence population changes must be considered with changes in national income when assessing a country's economic performance.
2) **Inflation/Deflation:** An increase in prices will increase national income but standard of living may fall. So, changes in national income must be compared with changes in prices to determine the impact on standard of living / economic performance.

3) **Employment / Unemployment:** If a person is unemployed rising national income will not necessarily mean that this person's average standard of living is rising.
4) **Levels of Taxation:** When considering a person's standard of living one should take into account rates of income tax and levels of indirect tax within the country. An increase in either of these may result in a drop in a person's standard of living.
5) **Levels of Social Welfare:** For a person who is unemployed the rates of social welfare payable is of more relevance that the average standard of living in the country.
6) **Measures Flow of Wealth not Welfare:** Rising GNP may be accompanied by changing working/living conditions which may cause a loss of welfare e.g. more traffic congestion and so a person's standard of living may fall.
7) **Hidden Social Costs attached to increases in National Income:** If a firm increases output national income increases. However, a hidden cost may be increased pollution etc.
8) **Distribution of National Income:** If increases in national income make their way into the pockets of a small minority, there may be no improvement in the standard of living of the whole community.
9) **Exclusion of Important Activities from Calculation of National Income:** The black economy is excluded from the calculation of national income. The work of housewives & voluntary activities is also excluded. Such activities are important to the welfare of its citizens.
10) **Nature of the Goods Produced:** A country which spends a small amount on military equipment and a large amount on health, education etc. will have a better standard of living that one where the reverse is the case.
11) **Government Services at Cost Price:** Government services are included at cost while private services are included at selling price. A country where the government provides many services will record a lower GDP / national income.

Explain the economic effect which each of the following could have on the level of GNP at Market Prices:

(i) A reduction in the general level of VAT

(ii)A reduction in the subsidies paid to farmers.

Answer

Short Term

	Reduction in General Level of VAT	Reduction in Subsidies paid to Farmers
Effect on GNP @ Market Prices	Will Decrease	Will Increase
Explanation	The reduction in VAT will decrease the prices paid for goods and services which consumers must pay in the market place	The reduction in subsidies paid to farmers will increase GNP @ Market Prices as prices for agricultural products will rise in the market place

Long Term

	Reduction in General Level of VAT	Reduction in Subsidies paid to Farmers
Effect on GNP @ Market Prices	Will Increase	Will Decrease
Explanation	With lower prices, consumers may buy more goods and services. Aggregate demand increases and so does GNP	Prices will rise and so demand for commodities will decrease, resulting in a reduction in consumption and so GNP will decrease