National Income

Chapter 11

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Leaving Cert 2025/2026

Learning Outcomes

In this chapter we will:

- construct and interpret the circular flow of income model; examine the effects of leakages and injections on the circular flow of income in the macroeconomy

- differentiate between GDP, GNP, GNI and GNDI as measures of national income; analyse which measure is a more accurate indicator of Ireland's economic performance and economic welfare

- critique the limitations of these measures of economic performance

- debate the economic and social impact of economic activities in the hidden economies

- explain the multiplier effect; apply the multiplier formulae to calculate and evaluate changes to national income in an open and closed economy

- investigate data patterns in Ireland's national income, price level, unemployment rate, government expenditure and national debt over a period of time; identify the different phases of business cycles and critically examine the main factors that led to the fluctuations in output

Measuring National Income

National Income – Definition

The income accruing to the permanent residents of a country from current economic activity during a specified period of time, usually a year.

There are several ways we can quantify or 'count' national income:

1. **The Income Method**: National income is counted under this method by adding up all the income earned from supplying the factors of production. In simple terms, it involve summing up the rent, wages, interest and profit from all economic activity over a defined period. In Ireland these figures are estimated using tax data from the Revenue Commission.

2. **The Expenditure Method**: Under this method we add up all money spent on goods and services in a country over the year. This includes expenditure by firms, the State and foreign sector on *domestically produced goods & services*. We add the value of products exported and subtract the value of imports to find the net contribution of the foreign sector to national income under this method.

3. **The Output Method**: Using this approach, we sum up the value of all goods and services produced in a country within a defined period. For the income and output counting, we exclude *transfer payments*.

Measuring National Income

Transfer Payments – Definition

Transfer payments refer to transactions for which money is paid without the provision of goods and services.

OR

Transfer payments refer to payments for which no factor of production has been supplied.
Social welfare (*the dole*) is an example of a transfer payment. A person receives a wage without supplying any labour or producing any goods/services.

Note: only count the added value at each stage of production, to avoid double-counting. For example, A farmer grows wheat worth €100 from €5 of seed (added value €95). A miller sells the milled wheat as flour to a baker for €500 (added value €400). The baker then sells loaves of bread to a confectioner for €800 (added value €300) who sells to the consumer for (added value €200), giving:

$$95 + 400 + 300 + 200 = 995$$ of national income under the output method.

National Income Definitions

Gross Domestic Product (GDP)

The total monetary value of all final goods and services produced *within the domestic economy* during a given year, regardless of who owns factors of production. It measures production inside Ireland's borders (includes output by MNCs located in Ireland), excluding income from Irish factors abroad. Irish GDP is high due to profit shifting by MNCs.

Gross National Product (GNI)

The total value of goods and services produced by the **factors of production owned by Irish residents**, regardless of where located.

$$GNI = GDP + \text{Net Factor Income from Abroad (NFIA)}.$$

Example: Profits of an Irish firm in the US count in GNP but not GDP.

Modified GNI (GNI*)

An adjusted version of GNI designed by the CSO to give a more accurate measure of the Irish economy. It excludes redomiciled companies' profits, aircraft leasing distortions, intellectual property transfers. MNCs make Irish GDP/GNI figures misleadingly high; GNI* is better for policy.

National Income Definitions

Nominal vs Real GDP

Nominal GDP is the value of output at current market prices (includes inflation). **Real GDP** is nominal GDP adjusted for inflation using a price index (reflects actual changes in output volume). Real GDP is better for comparing living standards over time.

Net National Product (NNP)

GNP allowing for depreciation of capital assets. It shows the sustainable income a country can consume without reducing its capital stock. Given by, NNP = GNP − Depreciation.

Net Factor Income from Abroad (NFIA)

The difference between income earned by Irish residents abroad and income earned in Ireland by foreign residents. For example, Wages sent home by Irish workers abroad increase NFIA; profits repatriated by MNCs reduce it.

Per Capita Income

National income (GDP, GNP, or GNI) divided by the population. It measures average income per person, better for international comparisons of living standards.
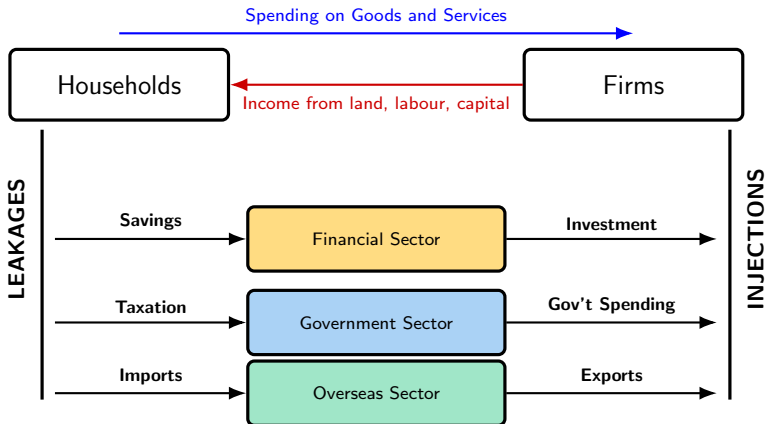
2021 HL Q15 (a)

Which measure is a more accurate indicator of Ireland's economic welfare: Gross Domestic Product (GDP) or Gross National Income (GNI)? Justify your answer.

Gross national income is a more accurate measure of economic welfare of Irish citizens as it is income that is received by the permanent domestic residents of the country. It excludes those incomes which are generated by the owners of a large part of the capital stock who are non-residents. The level of GNI is over one-fifth (20%) lower than the level of GDP.

Gross domestic product is a measure of the total incomes arising from the production of goods and services in Ireland. The owners of a large part of the capital stock are nonresidents. A consequence of this is that a significant part of the income arising from the production of goods and services in Ireland accrues to the foreign owners of capital assets in Ireland. Hence GDP overstates the living standards of Irish residents.

So in conclusion, GNI is a more accurate measure of Irish economic welfare; it depicts income to permanent domestic residents, excluding incomes to foreign owners of capital

Circular Flow of Income

Circular Flow of Income

For individuals

1. A household earns rent, wages and interest for supplying factors of production to a firm.

2. Part of these earnings are injected directly back into the economy when households purchase firms' output.

3. The rest of the earnings leak out of the circular flow:
   - Savings are deposited at financial institutions.
   - Taxation is paid to the State.
   - Spending on imports leaks out of the domestic economy.

For Firms

However, these leakages can be injected back into the circular flow.

1. Financial institutions can lend out the savings deposited by consumers – firms benefit from such loans, allowing them to grow and expand.

2. As firms grow, they may decide to enter a foreign market – if a foreigner buys Irish-made goods, the purchase is deemed an injection into the circular flow of income.

3. The tax revenue claim by the State can be injected back into the circular flow through subsidies, public services, etc.

National Income Equation

$$Y = C + I + G + (X - M)$$

This is printed in the economics section of your formula book.

MPC

The marginal propensity to consume (MPC) is the proportion of an increase in income that consumers are likely to spend on goods and services rather than save. It is given by:

$$MPC = \frac{\Delta C}{\Delta Y}$$

MPS

The marginal propensity to save (MPS) is the proportion of an increase in income that consumers are likely to save rather than spend. It is given by:

$$MPS = 1 - MPC$$

National Income Equation

MPT

The marginal propensity to tax (MPC) is the proportion of an increase in income on which consumers are taxed. It is given by:

$$MPT = \frac{\Delta T}{\Delta Y}$$

MPM

The marginal propensity to import (MPM) is the proportion of an increase in income that consumers are likely to spend on imported goods and services. It is given by:

$$MPM = \frac{\Delta M}{\Delta Y}$$

Using these figures we can calculate the multiplier effect for the domestic economy:

$$Multiplier = \frac{1}{MPM + MPT + MPS}$$

Note the equation above refers to an open economy with a gov't sector. If the economy is closed, remove MPM. If there is no gov't sector, remove MPT. Full instructions are on pg29 of *Formulae & Tables Book*.
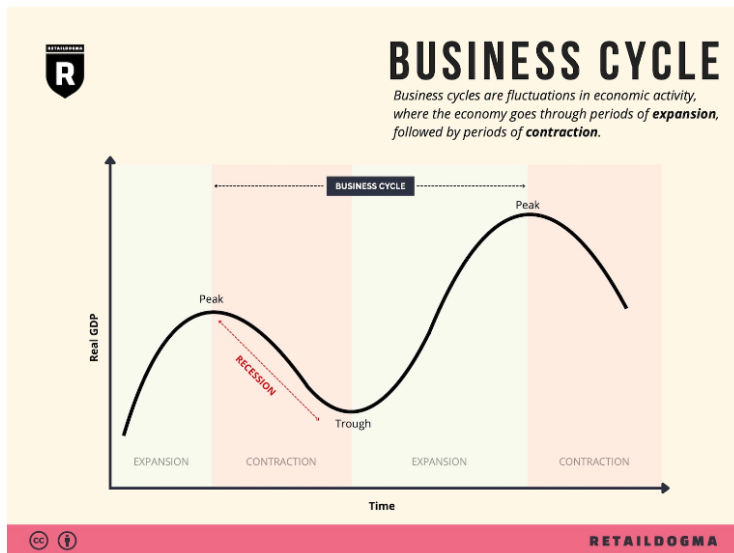
Past Exam Question

2021 HL Q15 part (b)

(i) Explain the term multiplier

(ii) Assume that MPM is 0.25 and MPC is 0.65 and MPT is 0.10.
Calculate the multiplier. Show all your workings

(i) The multiplier effect means that any injection into the circular flow of income leads to a more than proportionate increase in National Income e.g. an initial injection of €100m will lead to €200m rise in the size of National Income if the multiplier is 2.

(ii) Use the muliplier formula. Note $MPS = 1 - MPC = 1 - 0.65 = 0.35$

$$Multiplier = \frac{1}{MPM + MPT + MPS} = \frac{1}{0.25 + 0.10 + 0.35} = \frac{1}{0.70} \approx 1.429$$

Business Cycles

1. **Stage 1: Recovery**

   Initially, in a recovery from recession, there is a high level of unemployment. Lack of consumer confidence in the economy is reflected in high prices. These low prices are a poor incentive for business production so output remains low. However, capital (large, irregular) investment creates a multiplier effect. This boosts aggregate demand and stimulates economic activity.

2. **Stage 2: Boom**

   The economy continues to grow until the economy reaches its productive capacity –the level of employment rises until greater aggregate demand can no longer be satisfied by increased production (i.e., production has reached full capacity).

3. **Stage 3: Recession**

Recession

A recession occurs when economic activity contracts (decreases) over two or more consecutive quarters.

After having reached full capacity, investment declines. In response, consumers reduce aggregate demand. If output falls by more than 10%, the economy is said to be in depression. A depression is just a deeper, more prolonged economic contraction.

Factors Impacting Consumption

1. Level of Income, irrespective of source: the more income (wages, dividends, interest) a consumer has, the more they can spend on goods and services – for instance, if you get a pay raise, you might head out for dinner to celebrate.

2. Rate of Income Tax: a high rate of tax on income reduces the amount of disposable income that consumers can spend, decreasing the amount of income available for consumption.

3. Availability of credit: if consumers don't have enough they can us credit to fund their purchases – if banks are willing to offer low-interest loans or cheap credit card debt, consumption is likely to increase as consumers have more ways of paying for goods and services.

Factors Impacting Investment

1. Confidence/outlook of the business sector: optimism among businesspeople provides the necessary risk-taking to bring in FDI.

2. State spending/enterprise supports: enterprise subsidies help to make business more profitable by reducing the cost of producing a particular good or service.

3. State of technology: good use of technology (high-speed broadband, mechanised production and modern telecommunications) can make investments more profitable, efficient and attractive. Technological innovation is brought about by research and development.

4. Cost of capital goods: if a firm is looking to expand its operations, they will seek low prices for machinery, plant and vehicles in order to do so. If capital proves too costly, the level of investment will fall, and vice versa.

Factors Impacting State Expenditure

1. Current State of Economic Activity: if the economy is booming, the government may wish to reduce present expenditure and save up for a rainy day. However if the economy is in recession (consecutive drop in GDP across two or more quarters), the State may intervene to stimulate economic activity. This happened in 2008 when the State increased expenditure by 3.93%.

2. Amount of National Debt/International Credit Rating: this affects the ability of the government to fund its spending by borrowing – if the government has a poor credit rating, it may struggle to increase expenditure through borrowing.

3. Wages in the Public Sector: if wages in the public sector are too high, the State may have to make cuts to expenditure by offering voluntary redundancies, pay freeze or reduced pay – however, this could lead to industrial disputes/strikes.

4. The Rate of Inflation: if the price level is rising from one year to the next, the State will have to increase current expenditure just to maintain public services at present levels.

Factors Impacting Level of Exports

1. Foreign incomes: if incomes rise in Britain, British residents are more likely to spend more on Irish exports like beef, cheddar and electronics.

2. Domestic Inflation vs Inflation in Export Markets: if Irish inflation is lower than that of export markets like US, UK and China, Irish exports will be relatively cheaper and export levels rise – however, if Irish inflation outpaces inflation in export markets, Ireland could be priced out of the international markets.

3. The Exchange Rate: if the euro is weak relative to foreign currencies, Irish products offer greater value for money and export levels may increase, as a result of higher demand relative to domestic substitutes.

Factors Impacting Level of Savings

1. Consumer expectations for the future of the economy: if consumers have confidence in the future they will spend today, with a view to having more in the future.

2. Deferred spending: if consumers are unsure about their financial security, they will likely postpone spending and save instead – during the Coronavirus lockdown, the level of savings increased as workers feared job losses. Think about it logically – if you won't have any money in a month's time, you'll save up as much as you can.

3. Quality of Financial Products: if other financial products like shares, Bitcoin and property are offering better returns than savings people will invest their money instead of saving it – why would I put my money in An Post account at 0.5% if I could make 6% return in the stock market?

4. Rate of taxation on savings: Deposit Interest Retention Tax (DIRT) is charged on savings by the government. This tax is very high (roughly 50%) to discourage people from saving. However, if consumption taxes like VAT increased relative to DIRT, savings may increase.

Uses of National Income Statistics

Figures like GDP, GNP, GNI and GNDI can be useful as economic indicators, to give us a clear picture of our buying and selling patterns, for instance:

1. Shows Changes in our Living Standards: national income statistics illustrate how much richer or poorer we are compared to last year – if income per head increases from one year to the next, households could be financially better off.

2. Determine contribution to/receipts from of EU budget: given our level of economic wealth, Ireland contributes more to the EU budget than it receives. Nations in financial difficulty like Greece receive billions in financial aid from the EU due to the poor economic performance revealed by their national income statistics.

3. Formulate future economic policies: the expanding role of the State in Irish economic affairs means that government officials need more and more information to help make successful policies – national income statistics contain the necessary details to show the potential benefits and drawbacks of a particular State measure.

4. To analyse economic measures from the past: economists and policymakers use past national income statistics to make accurate and independent judgements on the success of a particular policy. When tariffs on free trade were lifted in the 1980's, national income statistics showed that the domestic economy grew by around 3% annually.

Limitations of Using National Income Statistics

Figures like GDP, GNP, GNI and GNDI can be useful as economic indicators, to give us a clear picture of our buying and selling patterns, for instance:

1. Inflation relative to economic growth: if inflation outpaces the rate of economic growth, living standards may have declined, despite national income statistics suggesting otherwise – for this reason, we must view GNP at constant market prices NOT current market prices to get a more accurate picture of changes to living standards over the year.

2. Population levels: if population growth outpaces the rate of economic growth, living standards have likely declined, although national income statistics mightn't reflect this.

$$Year 1 : €15bn \div 3mn \text{ ppl} = €5,000 \text{ per person}$$

$$Year 2 : €15bn \div 5mn \text{ ppl} = €3,000 \text{ per person}$$

3. Hidden social costs: the public may have to undergo some pain and suffering to achieve economic growth, suffering which goes unmentioned in the national income statistics – although the Chinese economy has seen massive economic growth, citizens have to wear surgical masks outdoors to protect themselves from industrial pollution.

4. Distribution of national income: generally, during period of rapid economic growth, a fortunate few tend to benefit disproportionately from such growth – if a nation's wealth is distributed unevenly, living standards may not improve.

The Hidden Economy

The hidden economy consists of economic activity (financial transactions) that go unrecorded in national income accounts, e.g., when you pay your plumber in cash. Be careful as the hidden economy is often referred to as the shadow/black economy. The social and economic impacts are:

1. More expenditures on law enforcement: the government must hire more Revenue Commissioners and tax collectors to ensure those who engage in the hidden economy are brought to justice.

2. Strain on exchequer finances: the exchequer may have to close the gap in government funding scaling back the services it provides, with harsh cutbacks on those who need State support.

3. The State loses out on Tax Receipts: activity in the hidden economy is not recorded so transaction taxes (VAT) aren't charged – while the State is spending more to enforce existing laws, its losing money on unpaid taxes.

4. A decline in legitimate business activity: law-abiding businesses may struggle to compete with the illicit dealings involved in the hidden economy – they may be forced shut down, leaving only criminals in business.

5. Public outrage: those who need State support are forced to suffer at the hands of tax dodgers, who reap the benefits – population would likely express distaste at the lack of government supervision.

6. Greater criminality: a rise in the hidden economy means there is less oversight of economic activity - this can lead to Mafia-like groups or cartels gaining control and imposing fear on the public.