Inflation, Prices, & Monetary Policy

Chapter 14

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Learning Outcomes

In this chapter we will:

- explain inflation and deflation and describe how they are measured using a price index like the Consumer Price Index
- evaluate the cause of inflation and consequences of changes in price level for consumers, firms and the economy as a whole.
- examine the objective and role of central banks in implementing monetary policy
- evaluate how being a member of the Eurozone shapes and influences monetary policy in the Irish economy

Definitions

Inflation – Definition

Inflation is a steady and persistent rise in the general price level. It is the rate at which your money *loses the ability to buy goods and services*.

Deflation – Definition

Deflation is a general fall in the price level. As prices continue to decline, consumers may postpone buying in anticipation of further falls. Aggregate demand falls, as growth and employment decline.

Example: This happened in the Irish housing market following the 2008 recession.

Calculating Inflation: **Simple Index**

To measure the change in price of a good, take its price at two intervals and compare them using a **simple index**:

$$\text{Simple Index in year } t = \frac{\text{Price in year } t}{\text{Price in base year}} \times 100.$$

Example (Price of garlic) — Prices clearly rise by 9c between years 1–4.

Year	1	2	3	4
Price (€)	0.90	0.92	0.93	0.99

Indices (base year $= 1$):

$$\text{Y1} : \frac{0.90}{0.90} \times 100 = 100, \text{Y3} : \frac{0.93}{0.90} \times 100 = 103.3, \text{Y4} : \frac{0.99}{0.90} \times 100 = 110.$$

Percentage rise Y1→Y4:

$$\frac{Y4 - Y1}{Y1} \times 100 = \frac{110 - 100}{100} \times 100 = \mathbf{10\%}.$$

The **Composite Price Index** — Why and How

Individual vs General: While a simple index is effective for individual goods, a **composite** index is needed to examine *general* fluctuations in the overall price level.

Constructing a composite index

1. Establish a **base year** where the index = 100.
2. Find prices for a selection (basket) of goods in the years examined.
3. Construct the **simple index** of each good.
4. **Weight** each good by the % of income spent on it.
5. Combine the weighted simple indices to obtain the composite index.

See textbook p. 315 for a worked example.

CPI: Basic Outline & Calculation

What CPI measures: Overall change in prices of products consumers normally buy. ∼53,000 prices are taken each month and compared to the previous month.

Key point: CPI reflects the *average* household's basket (from the Household Budget Survey, HBS, updated about every 5 years), not any one individual's basket.

Steps to compile CPI

1. Select base year (= 100).
2. Determine basket goods (from HBS).
3. Gather price data within the decided timeframe.
4. Observe % income shares on each good (weights).
5. Multiply each good's simple index by its weight.
6. Sum to obtain the overall change in the price level.

Example – Indices for Bread vs Car; Judging ΔE Jan→Dec

Base year (Dec Y_1) $= 100$

	Bread	**Car**
Dec Y_1	100.0	100.0
Jan Y_2	100.0	100.3
Feb Y_2	99.7	100.3
Mar Y_2	102.7	100.4
Apr Y_2	104.4	100.4
May Y_2	105.0	100.4
Jun Y_2	106.2	100.4
Jul Y_2	106.2	100.5
Aug Y_2	106.3	100.6
Sep Y_2	106.1	100.6
Oct Y_2	112.7	100.6
Nov Y_2	115.6	100.7
Dec Y_2	**119.7**	100.7

Formula for change from Jan to Dec of Y_2:

$$\left(\frac{\text{Latest index no.}}{\text{Earliest index no.}} \times 100\right) - 100.$$

Car:

$$\left(\frac{100.7}{100.3} \times 100\right) - 100 \approx \mathbf{0.4\%}.$$

Bread:

$$\left(\frac{119.7}{100} \times 100\right) - 100 = \mathbf{19.7\%}.$$

CPI – Practical Uses

- **Measuring the inflation rate:** Monthly fluctuations in CPI indicate the change in general prices for goods and services such as bread or cars.
- **Indexing savings & investments:** Some saving schemes are index-linked. This means that The rate of interest on such schemes is determined by rises/falls in CPI. Pension funds may require supplementary investment so that real returns keep pace with CPI.
- **Wage negotiation tool:** Trade unions cite CPI rises when demanding higher wages for unions members (workers). A rise in the general price level can reduce real purchasing power.
- **Government use CPI when making Budget Policy** Index-linking wages and tax rates to inflation can help prevent *fiscal drag* so people are not pushed into higher tax brackets purely due to inflation. It can also help determine whether social welfare contributions should be changed.

Limits / Precautions

- **Only an index of the *average* consumer:** As CPI measures aggregate consumption, it cannot match any one household's pattern (e.g. tourists vs. residents; foreign holidays not captured for those staying in Ireland, etc.).
- **Doesn't capture *emergent* trends quickly:** As the basket is only reviewed once every 5yrs new trends which develop in the meantime are not considered under the CPI umbrella. CDs have been replaced by streaming services Like Netflix and Spotify, but the diminishing spend on CD's in favour of digital streaming likely wasn't picked up by CPI for until consumer trends were updated.
- **Changes in quality:** While index shows how prices have risen, it doesn't consider whether or not these price increases have been justified by a corresponding improvement in quality.
- **Substitution effect/Change in Tastes:** CPI compares price of fixed quantity of products in two different periods. However, when prices of certain goods rise, consumers may buy cheaper alternatives which CPI doesn't fully account for.

Factors Causing Inflation

1. **Demand Pull Factors:**
   If aggregate demand is greater than aggregate supply (excess of demand/shortage) prices are driven upwards. It occurs when wages and purchasing power of money increase faster than the rate of production growth. Money supply can outpace aggregate supply due to easy access to cheap credit and high public spending. Thus, there is said to be "too much money chasing too few goods" so excess demand *pulls* prices upwards.
2. **Cost Push Factors:**
   If a firm experiences a hike in production costs, let's say due to higher labour costs, this higher cost will likely be passed onto consumers in the form of pricier goods.
3. **Imported Inflation:**
   Imported raw materials are often essential to production. Irish cement firms regularly buy bauxite from North Africa. If the price of bauxite rises so does the cost of cement production. The price of cement will likely increase
4. **Government-induced inflation:**
   The government may decide to raise VAT via budgetary policy. This increases nominal prices. Reducing PAYE (income tax) raises consumers' discretionary income, boosting spending power, possibly giving rise to demand pull inflation.

Studying Impacts of Price Fluctuations

On Consumers

- **Lower living standards:** Higher cost of living reduces real purchasing power. Consumers able to buy less goods with the same income.
- **Higher wage demands:** Workers and unions seek higher wages to compensate for lost purchasing power.
- **Discourages saving:** If nominal interest is below inflation, the real return is negative. So, inflation can erode the value of savings. Say interest rates are 1% in a given year, and inflation is $2\frac{1}{2}$%. Then the return on savings is $1 - 2\frac{1}{2} = -1\frac{1}{2}$%, ie a drop in the value of savings.

On Firms

- **Higher unemployment / cost pressure:** Rising wage demands and loss of competitiveness in export markets may force firms to cut costs or reduce staff.
- **Higher nominal demand (demand-pull):** With limited supply, price increases can raise revenue, potentially enabling firms to meet wage demands & even boost profits.
- **Encourages speculation:** Asset values (e.g. houses/land) tend to rise during inflationary periods, attracting funds to property.

Studying Impacts of Price Fluctuations

On The Economy

- **Loss in trade competitiveness:** If Irish inflation is higher than that of our trading partners, goods of domestic firms are relatively more expensive. In this way, Irish industry can become priced out of foreign markets.
- **Difficulty attracting FDI:** Foreign investors and Multinational Corporations (MNC's) are less likely to locate here if inflation is too high. High wage and raw material costs can eat away at profit margins and, more generally, make Ireland a less business-friendly environment.
- **Higher tax revenue (short run):** If wages rise with prices, nominal demand may not fall immediately so nominal tax receipts can increase in the immediate term.

Inflation in Europe: HICP

HICP compares inflation across Europe using a harmonised approach (common calculation method for each country).

Similarities (CPI vs HICP)

- Both measure fluctuation in the price level based on a fixed basket of consumer products.
- Both incorporate private households; HICP also includes institutional households (since 2013) and foreign visitors (since 2020 law).
- Both follow EU regulations set by Eurostat; component indices must adhere to national statistics standards.

Key differences

	CPI	**HICP**
Introduced	March 1922	1996
Geography	Ireland only	EU-wide comparison
Base Year	Current: Dec 2011 = 100	Example base: 2015 = 100

The Eurozone

The Role of The European Central Bank

Maintaining Price Stability

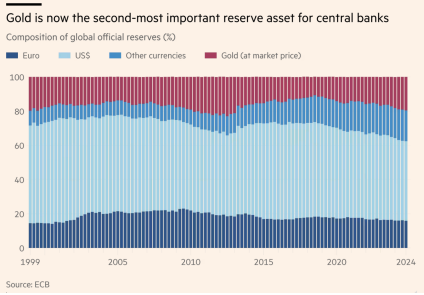
- Consumers spend when prices are stable and predictable. This contributes to aggregate demand boosting economic growth.
- Wages rise steadily without undue pressure on firms. This allows companies to plan more effectively, creates a more business-friendly environment.
- Tax take rises with spend in the short-term with more people working (higher income tax revenue) and spending (more VAT revenue)

Monetary Policy

Monetary policy is used by central banks to achieve price stability. It involves using the following tools to affect money supply:

1. Changing money supply via the open market (quantitative easing printing more money). This is key for providing banks with liquid assts (cash)
2. Change regulation surrounding issue of loans

Responsibilities of the European Central Bank



- **Issue banknotes & reserves:** Only Eurosystem (ECB & National Central Banks of Eurozone members) is authorised to create euro banknotes and reserves. NCBs issue physical cash, while the ECB controls liquidity via interest rates in money markets.
- **Indicate policy approach:** The ECB communicates its monetary stance to markets through the media. For example, the ECB President (currently Christine Lagarde) may signal rate rises/cuts to shape expectations in financial markets.
- **Affect proper market function:** Stabilise money markets (short term sources of finance) by managing liquidity, allowing demand for funds to be addressed as needed.

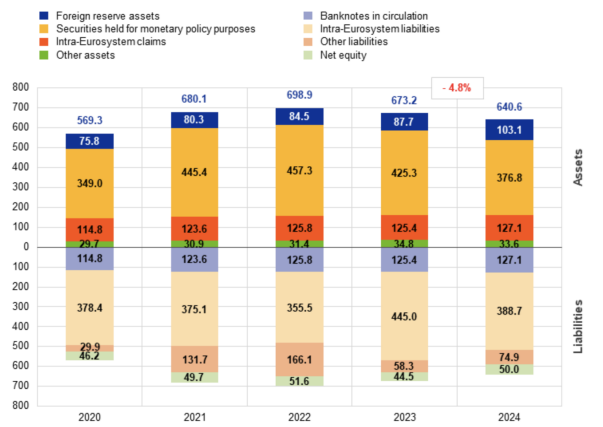
How the ECB Implements Monetary Policy

- **Manage quantity/creation of money supply:** Preserve the euro's value, relative to other major currencies like the US dollar, Pound Sterling and the Yen.
- **Open market operations:** The ECB utilises open market operations to manage excess liquidity by borrowing from commercial banks and national governments (via the sale of bonds). It can also use quantitative easing (QE) – the purchase of bonds – to inject capital into the economy.
- **Use of Standing facilities:** *the Marginal lending facility*, for example sets the overnight rate for bank borrowing from the Eurosystem. Credit is secured (eg, by mortgage-backed securities), ensuring repayment.
- **Reserve requirements:** The ECB requires credit institutions to hold minimum reserves at their NCB. The key parameters for calculating a financial institution's reserve requirement include reserve base, ratio, and remuneration. A bank with a reserve requirement of 2% means they must hold a minimum 2% of deposits in the form of liquid cash.

ECB Balance Sheet

Main components of the ECB's balance sheet

(EUR billions)



Source: ECB.

How ECB Policy Relates to Ireland (ii)

- A **single interest rate** applies across the euro area. Since there is a single interest rate for all eurozone members, impacts on individual members can vary. A country may have to pay high interest rate even if inflation is low, which could harm growth.
  This is a major drawback of a currency union like the Eurozone. We don't have national control of monetary policy. If inflation is high in Ireland but low in other Eurozone economies, it could be beneficial to Ireland to increase interest rates. Yet if the wider Eurozone would not be benefitted by higher interest rates, its unlikely they would be increased.
- **Exchange rate & balance of trade:** ECB policy affects the euro exchange rate, which in turn influences Ireland's trade balance.
- **Money & credit circulation:** By steering money supply and minimum reserve ratios, the ECB influences credit conditions in Ireland. These policies dictate the circulation of money and flow of credit in Irish economy.
- **Emergency Liquidity Assistance (ELA):** In crises, liquidity can be provided to Irish banks via their NCB to inject capital/stop runs. This can comprise of cheap loans to inject capital to struggling banks.

The Central Bank of Ireland

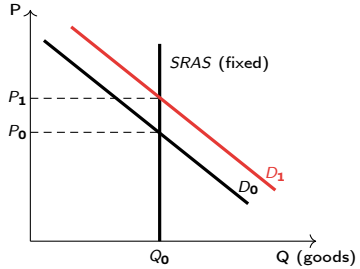
The Central Bank of Ireland, as part of the Eurosystem is the main regulator of financial services in Ireland (you'll hear this at the end of insurance ads – "Regulated by the Central Bank of Ireland"). Their job is to safeguard the public interest by providing Irish financial stability as part of the Eurozone.

Duties

- **Ensure price stability:** Consistent application of monetary policy is achieved through the Eurosystem Governance Council.
- **Stabilise the financial system:** Macroprudential tools such as mortgage measures and countercyclical capital buffers (where banks are required to raise capital during periods of high credit growth). The *Central Credit Register* tracks loans to firms and individuals.
- **Supervision:** Single Supervisory Mechanism (SSM) coordinates with ECB to supervise credit institutions; ensures regulated firms are financially sound and protect consumers' interests.
- **Provision of economic advice & statistics:** Collect, analyse, and publish data to inform national and EU policy decisions.

Changes in Money Supply/Demand

When money supply > production (goods & services): Inflation: More money chases relatively fixed supply ⇒ consumption rises; without sufficient supply response, prices increase.



Imports: With extra money, more spending may leak to imports ⇒ growth in foreign demand.
Declining exchange rate: Higher money supply with stronger import demand can weaken the euro.
Interest: Abundant money is generally associated with lower interest rates; by the price mechanism, excess supply of money lowers its "price" (the interest rate).