Output measures, spending and the multiplier

Pearson Edexcel · International A-Level · Economics

Pearson Edexcel International AS Economics (WEC12), specification Issue 2, June 2018. This topic covers spec sections 2.3.1–2.3.5 in full: measures of economic performance (four rows), aggregate demand (five rows), aggregate supply (three rows), national income (four rows) and economic growth (four rows) – 66 lettered objectives in total. Worked numbers are original unless labelled SAM (Sample Assessment Materials, WEC12/01), and every calculation below is internally consistent.

Must-know for this topic:

Family	Relationship
national income	real GDP $= \frac{\text{nominal}}{\text{deflator}} \times 100$; per capita $= \frac{\text{real}}{\text{population index}} \times 100$
inflation	$\text{CPI} = \sum(\text{weight}_i \times \frac{P_{i,1}}{P_{i,0}} \times 100)$
aggregate demand	$AD = C + I + G + (X - M)$
multiplier	$k = \frac{1}{1-MPC} = \frac{1}{MPW}$, $MPW = MPS + MPT + MPM$; $\Delta Y = k \times \text{injection}$

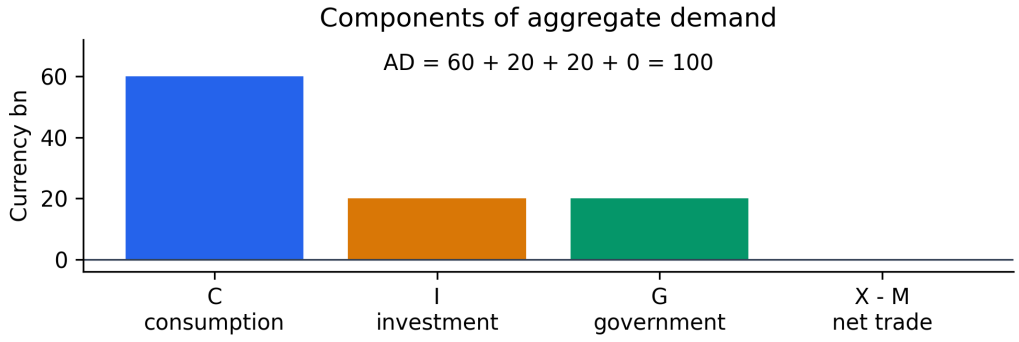
Measures of economic performance

Economic growth is the rate of change of REAL Gross Domestic Product – the value of output produced within a country (2.3.1.1a); **Gross National Income** (GNI) adds net income earned abroad by residents and is an alternative measure of national income. Distinguish REAL (deflated) from NOMINAL (current prices), TOTAL from PER CAPITA (divided by population), and VALUE from VOLUME (quantity) measures (2.3.1.1c): with nominal GDP index 112 and a price deflator of 108, real GDP $= \frac{112}{108} \times 100 = 103.7$; dividing by a population index of 102 gives real GDP per capita = 101.7 – a growth of 1.7% in living standards against 3.7% real growth (2.3.1.1a). Compare growth rates across countries and over time, and use **Purchasing Power Parities** (PPP) – exchange rates that equalise the price of identical baskets – to make fair international comparisons of real GDP/GNI, since market exchange rates understate living standards in low-price countries (2.3.1.1d–e). Positive growth raises output; negative growth cuts it, and a **recession** is two consecutive quarters of negative growth (2.3.1.1f–g). GDP/GNI limitations for living standards: non-market activity, the shadow economy, income distribution, working hours, environmental damage, and price differences (2.3.1.1h); national happiness and wellbeing indicators (life expectancy, corruption perception, reported happiness) complement it – above a threshold, higher real income buys little extra SUBJECTIVE happiness (2.3.1.1i).

Inflation is a sustained rise in the general price level; **deflation** is a sustained fall; **disinflation** is a slower rate of RISE – prices still rising (2.3.1.2a). *(SAM WEC12/01 Q12(b), adapted)* India's CPI inflation fell from about 12% in 2010 to about 9% in 2011 and from about 11% in 2013 to about 6% in 2015: each year prices ROSE, but the rate of increase fell – disinflation, never deflation, since the rate stayed positive. Calculate a **consumer price index** (CPI) from a weighted basket: weights 50/30/20 over three goods with price relatives 110/100/120 give CPI $= 0.5 \times 110 + 0.3 \times 100 + 0.2 \times 120 = 109$, so inflation is 9% (2.3.1.2b). CPI limitations: a fixed basket, quality change, and the representative household (2.3.1.2c); the producer (wholesale) price index signals FUTURE inflation because producer costs pass through to consumer prices (2.3.1.2d). Causes of inflation: DEMAND-PULL (AD beyond capacity), COST-PUSH (input costs raising prices), and excessive money supply growth (2.3.1.2e); deflation comes from falling AD, a rise in AS, or a falling money supply (2.3.1.2f). Effects of inflation and deflation hit consumers (real incomes, savings), the government (tax receipts, debt values), firms (planning, costs), workers (real wages), income distribution (borrowers gain, lenders lose), investment (uncertainty), UK competitiveness, and the current account (2.3.1.2g).

Unemployment is measured by the ILO definition: those without work who are available and actively seeking (2.3.1.3a). Causes: FRICTIONAL (between jobs), SEASONAL, STRUCTURAL (skills mismatch), DEMAND-DEFICIENCY, and REAL-WAGE inflexibility (wages stuck above equilibrium) (2.3.1.3b). Effects: consumers lose income, firms lose demand, workers lose skills, public finances lose tax and pay benefits, the economy operates INSIDE its PPF, and society carries costs of crime and exclusion (2.3.1.3c). **Underemployment** – employed people wanting more hours or a job matching their skills – is distinct from unemployment (2.3.1.3d). Watch rates of employment, unemployment AND economic inactivity together, and note net migration's significance for labour supply (2.3.1.3e–f).

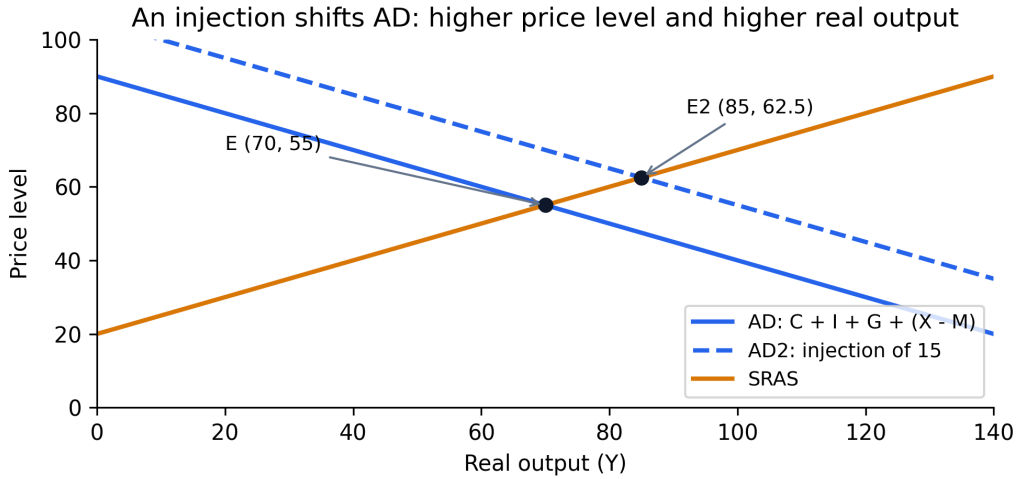
The **balance of payments** records transactions with the rest of the world; the CURRENT ACCOUNT trades goods and services, plus primary and secondary income (2.3.1.4a); a deficit on trade in goods and services means imports exceed exports; a current-account deficit or surplus is the balance on the whole account (2.3.1.4b–c).



Original data; the C = 60, I = 20, G = 20, X − M = 0 split is used throughout this topic.

Aggregate demand

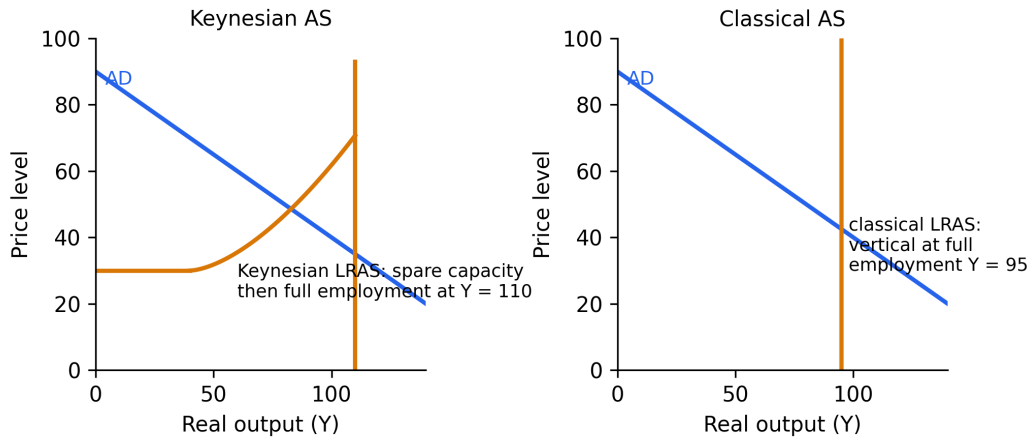
Aggregate demand is the total planned spending on domestic output: $AD = C + I + G + (X - M)$ – with C = 60, I = 20, G = 20 and net trade 0, AD = 100 (2.3.2.1a–b). The AD curve slopes DOWN with the price level (wealth, trade and interest-rate effects); a price-level change moves ALONG it, any change in C, I, G or net trade SHIFTS it (2.3.2.1c). Consumption responds to disposable income, interest rates, consumer confidence, welfare payments, wealth effects and the availability of credit; whatever is not consumed is saved – the **savings ratio** is saving as a share of income, and it changes with confidence, interest rates and wealth (2.3.2.2). Investment distinguishes GROSS from NET (net = gross minus depreciation) and responds to economic growth, interest rates, business confidence, credit and corporation tax; governments promote it through tax relief, subsidies and lower corporation tax (2.3.2.3). Government expenditure follows fiscal policy, the level of activity (benefits fall in booms), market-failure correction and political priorities (2.3.2.4). The net trade balance moves with real income (imports rise when Y rises), the exchange rate, the global economy, protectionism and non-price factors such as quality and design (2.3.2.5).



Original model: AD P = 90 − Y/2, SRAS P = 20 + Y/2, equilibrium (70, 55); an injection of 15 shifts AD to (85, 62.5).

Aggregate supply

Aggregate supply is the total planned output at each price level; the AS curve rises with the price level, price changes move ALONG it, and cost or productivity changes SHIFT it (2.3.3.1). Short-run AS shifts with raw material and energy costs, exchange rates (imported inputs) and tax rates (2.3.3.2). The LONG-RUN AS curve comes in two shapes: the KEYNESIAN curve is horizontal with spare capacity, curves up as full employment approaches and turns vertical at capacity; the CLASSICAL curve is vertical at the full-employment output – the classical economy always tends back there (2.3.3.3a). LRAS shifts with technology, productivity, education and skills, regulation and tax, demography and net migration, and competition policy (2.3.3.3b).

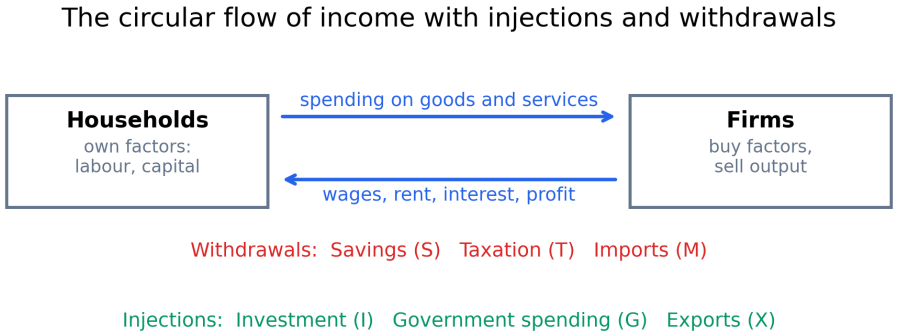


Original diagrams; the same AD curve meets each shape at a different implied adjustment story.

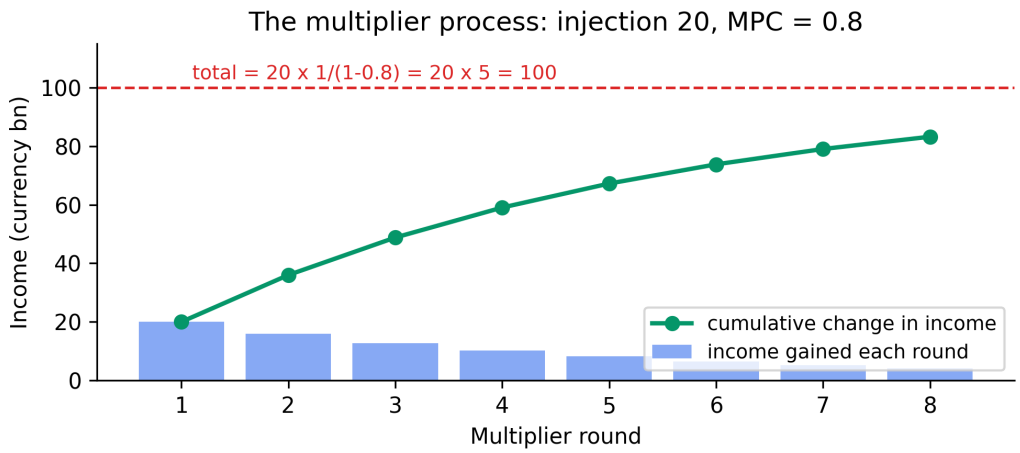
National income and the multiplier

The **circular flow of income** links households and firms: households supply factors and buy output; INCOME equals OUTPUT equals EXPENDITURE. **Wealth** is a stock of assets; **income** is a flow (2.3.4.1). INJECTIONS add spending – investment, government expenditure, exports; WITHDRAWALS remove it – saving, taxation, imports (2.3.4.2a–c). Net injections raise the equilibrium level of real national output; net withdrawals lower it, and equilibrium returns when $I + G + X = S + T + M$ (2.3.4.2d). Equilibrium real output sits where AD meets AS, and shifts in AD or AS move it – the (70, 55) model economy moves to (85, 62.5) with an injection of 15 (2.3.4.3).

The **multiplier** turns an injection into a larger change in income: each round of spending becomes income, part is re-spent, and the process accumulates (2.3.4.4a). The **marginal propensity to consume** (MPC) drives it; withdrawals drain it through MPS, MPT and MPM (2.3.4.4b). $k = \frac{1}{1-MPC} = \frac{1}{MPW}$ (2.3.4.4c). *(SAM WEC12/01 Q9, adapted)* With MPC = 0.5, $k = \frac{1}{1-0.5} = 2$, so a £30 billion investment raises national income by $2 \times 30 =$ £60 billion. With $MPW = MPS\,0.1 + MPT\,0.15 + MPM\,0.25 = 0.5$, $k = \frac{1}{0.5} = 2$ again; with MPC = 0.8, $k = 5$ and an injection of 20 raises income by 100 in total – the rounds 20, 16, 12.8, 10.24 … sum to 100 (2.3.4.4d). The bigger the multiplier, the bigger the AD shift a given injection buys – which is why the SAME stimulus works differently in economies with different import propensities.



Original schematic; the equilibrium condition is the multiplier's drain condition.

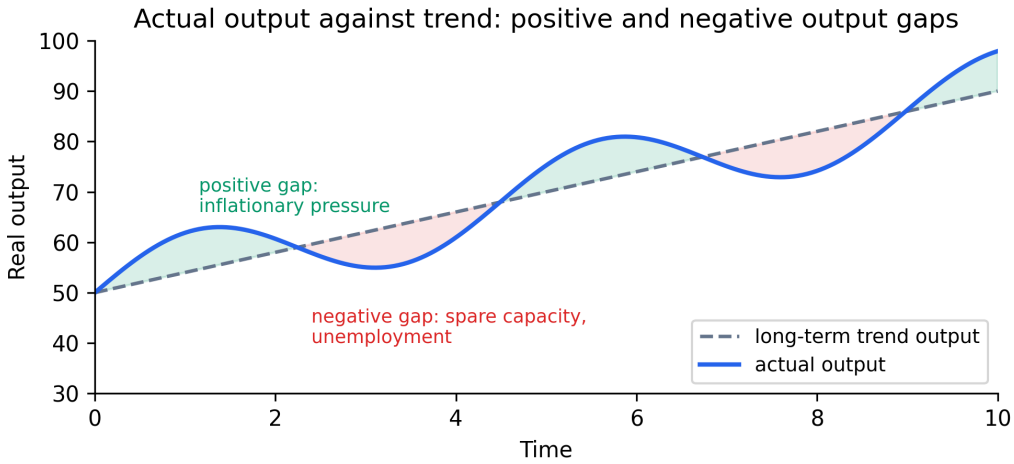


Original data; the cumulative change converges to 20 x 5 = 100.

Economic growth

ACTUAL growth is a movement towards the PPF (more output from given capacity); POTENTIAL growth is an outward shift of the PPF (more capacity) (2.3.5.1a). Actual growth comes from any component of AD rising – consumption, investment, government spending or net trade – and international trade matters because export-led growth adds demand without domestic inflation (2.3.5.1b–c). Potential growth comes from domestic and foreign direct investment, innovation, a growing labour force (including net migration) and stronger competition (2.3.5.1d); PRODUCTIVITY growth is the deepest driver of long-run growth rates (2.3.5.1e). Benefits of growth: higher

living standards, lower unemployment, higher profits, more investment, higher tax revenues and better public services (2.3.5.2). Costs: opportunity costs (investment instead of consumption), environmental damage, trade deficits as imports surge, greater inequality, and inflation if growth runs past capacity (2.3.5.3). An OUTPUT GAP is the difference between actual output and the long-term trend (2.3.5.4a): a POSITIVE gap means actual output above trend – inflationary pressure; a NEGATIVE gap means spare capacity and unemployment (2.3.5.4b–c). Gaps are hard to measure because the trend itself is estimated, data arrives late and is revised (2.3.5.4d).



Original cycle; the shaded bands mark the positive and negative gaps of spec 2.3.5.4.

Checklist

- Real versus nominal, total versus per capita, value versus volume GDP/GNI; PPP comparisons; recession definition; GDP limitations and wellbeing indicators (2.3.1.1).
- Inflation, deflation, disinflation; CPI from a weighted basket (109 → 9%); PPI as a leading indicator; demand-pull, cost-push and money-supply causes; the eight effect groups (2.3.1.2).
- ILO unemployment; the five causes; effects on six groups; underemployment; employment, inactivity and migration (2.3.1.3).
- Balance of payments components; goods-and-services balance; current-account deficit and surplus (2.3.1.4).
- AD = C + I + G + (X − M); movements versus shifts; the influences on C (and the savings ratio), I (gross vs net), G and net trade (2.3.2).
- SRAS shift factors; Keynesian versus classical LRAS shapes and their shift factors (2.3.3).
- Circular flow; injections and withdrawals; I + G + X = S + T + M; equilibrium from AD/AS (2.3.4.1–3).
- The multiplier: process, MPC/MPS/MPT/MPM, k = 1/(1−MPC) = 1/MPW, SAM's 2 × £30bn = £60bn and the 5 × 20 = 100 example (2.3.4.4).
- Actual versus potential growth; AD-side and capacity-side causes; the six benefits and five costs; positive and negative output gaps and their measurement (2.3.5).

Boundary notes: quantitative skills QS1–QS4 and QS9 are examined throughout (ratios, fractions, graphs and data interpretation); calculators are allowed. Diagrams must label axes, curves and equilibria, and show the SHIFT arrow. Answers to 8+ mark questions earn Application marks by using the context's data (the SAM mark schemes award Knowledge/Application/Analysis separately). Worked examples are original or adapted from the WEC12/01 Sample Assessment Materials (identifiable by the SAM label) with arithmetic re-derived.