



- Microeconomics

Supply shift right	India subsidizing gas Supply of air travel increasing in the UK as more airline companies are joining
Supply shift left	Sugary drinks - UK sugar tax shifts supply curve to the left
Supply shock - supply shift to the left	May 2018 - Supply of vanilla ice cream shift to left - Price of vanilla rose to \$600 per kilogram because of cyclone in Madagascar which damaged a lot of the plantations
Excess demand (shortage)	Iraq invasion 2003, oil prices rose \$20 to \$35 a barrel in 2004, the war disrupted extraction of crude oil, reducing world supply
Excess supply	Harvest season for crops, there is more supply than people will be willing to buy, price decreases
High PED (elastic) goods	Luxury items - Gucci clothing
Low PED (inelastic) goods (2 examples)	Cigarettes have a PED between -0.4 in USA - The price of Daraprim (cancer drug) was increased by more than 50 times but demand barely changed, because it was a necessity
Positive XED (substitutes)	Low XED (weak substitutes): tea and coffee High XED (strong substitutes): XED of Coke and pepsi has been estimated to be about + 0.7
Negative XED (complements)	Low magnitude XED (weak complements): tea and milk High magnitude XED (strong complements): smartphones and mobile apps, LV and BMW luggage
Negative YED (inferior goods)	Second-hand clothing, house-brand goods, margarine, cheap goods
Low positive YED (income inelastic) (normal good)	Most foods consumed at home have a low YED - about 0.2
High positive YED (income elastic) (luxury good)	Premium cars, boats, jewelry
High PES (elastic)	Taxi services, pens, smartphones
Low PES (inelastic)	Nuclear reactors, fresh produce, gold, housing
Indirect tax	Singapore GST: 7% on all goods and services



Subsidy	<p>US agricultural subsidies: \$20 billion per year Ensures steady domestic food supply, provides economic stability to farmers, increases international competitiveness</p> <p>China subsidising solar panel production, increased production by 25%</p> <p>US cotton producers subsidies</p>
Price ceiling	<p>India price ceiling on bare metal stents, implemented Feb 2017 Prior to cap, bare metal stents were selling for 650 USD, now capped at 100 USD</p> <p>Rent in San Francisco</p>
Price floor	<p>UK price floor on carbon, implemented April 2013 Part of the EU Emissions Trading System aimed to combat climate change, the current price floor is 18 pounds per tonne of CO₂ (Year 2019). Promotes investment in low-carbon electricity generation</p> <p>Minimum wage in UK is 8 pounds an hour</p>
Legislation for positive externalities of consumption/merit goods	Vaccinations in Australia - making it mandatory for children to get vaccine to enroll in school - done through legislation
Direct provision of merit goods	New Zealand national immunisation schedule, free vaccines offered to reduce diseases and illness
Subsidized provision of merit goods to tackle underconsumption of merit goods	SG - Low-income Families are eligible to sign their children up for the Financial Assistance Scheme (FAS). Under the FAS, students get to enjoy subsidised school fees and transportation fees, and free textbooks. This increases the affordability of education in Singapore, effectively tackling the underconsumption of pre-tertiary education in Singapore that is caused by high income inequality.
Negative externalities of consumption -cigarettes (3)	<p>Malaysia - Nov 2015, 40% excise duty placed on cigarettes Legislation Jan 2019, smoking banned in all eateries</p> <p>Singapore raised age from 18 to 19</p> <p>UK - Smoking cost to NHS of about 3-6 billion pounds a year</p>
Sugar tax	2017 - about 20p per litre on sugary drinks in the UK, it has worked as many companies have changed their recipes to

	<p>reduce sugar content in their drinks</p> <p>Mexico sugar tax cut sales by 12% in the first year of implementation</p>
Positive externalities of production	<p>Production of hybrid car technology by Toyota, as they are providing free access to their patents and providing parts to competitors, to increase the use of lower-emission technology</p> <p>Tesla also offering free access to electric vehicle patents</p>
Negative externalities of production (2 examples)	<p>DuPont released harmful chemicals up until 2013 into the Ohio river, known to cause cancer. Currently facing lawsuit from the state of Ohio</p> <p>16 of the top 20 most cities with worst air pollution are from China - due to factories, industrialization, surge in no. of motor vehicles</p> <p>China subsidized \$9800 to buyers of electric and hydrogen vehicles to combat rising air pollution</p>
Advertising to promote consumption of merit goods	5-a-day programme run in Germany in line with WHO statement to eat 400 grams of fruits and vegetables per day
Common Access Resources (2 examples)	<p>Coral harvesting in the Great Barrier Reef, government quota set at 200 tonnes but it is not sustainable</p> <p>Overfishing in Virginia for striped bass, currently in discussion to ban recreational fishing. During the fishing season, a quota of 1 fish per day is already in place.</p>
Public goods	National defense, street lighting, roads, public parks, sewer systems, law enforcement
Legislation to combat negative externalities of consumption	Singapore air pollution laws, vehicles must meet strict emission standards to be able to be used
Carbon tax	<p>In 2012, Japan implemented tax on all CO₂ emissions from fossil fuels at a rate of 289 yen per tonne of CO₂. All tax revenue used for reducing CO₂ emissions, investing in clean tech</p> <p>Last month, Canada imposed a carbon tax of \$20 per tonne of carbon emissions</p>
Cap and trade schemes	EU Emissions Trading System: since 2005, EU set cap on total amount of greenhouse gas emissions, can be traded and sold, total cap is reduced over time to reduce total emissions



Funding for clean technology

PUB, Singapore's national water agency funded and produced NEWater, which is recycled water, treating used water

In 2013, Windcentrale, a Dutch company, crowdfunded \$1.3 million to invest in wind turbines to place in the centre of the Netherlands



- Macroeconomics

<p>GDP vs GNP stats</p>	<p>Developing countries have lower GNP than GDP, as much of their GDP is contributed by multinational corporations</p> <p>Bangladesh GDP 2017: 250 billion USD Bangladesh GNP 2017: 120 billion USD</p> <p>Half of Bangladesh's GDP is from foreign firms owing productive capacity in Bangladesh. This income is likely not spent in the country, so does not affect economic growth</p>
<p>Total GDP/GNI vs GDP/GNI per capita</p>	<p>India GDP: 2.6 trillion USD France GDP: 2.6 trillion USD</p> <p>India GDP per capita: 2,000 USD France GDP per capita: 38,000 USD</p>
<p>Green GDP</p>	<p>China measured Green GDP for one year, 2004. China GDP 2004: 1.9 trillion USD Environmental loss 2004: \$66 billion, or 3% of GDP</p> <p>Was considered to be too conservative, as it only took into account the costs of environmental pollution. Did not take into account costs of natural resource depletion, soil contamination, ecological damage</p> <p>China may have stopped measuring green GDP as it could have been politically damaging. 460,000 died prematurely from air and water pollution each year. Announced in 2015 that they will reintroduce green GDP to "holistically reflect" the environmental cost of economic activity</p>
<p>High and low unemployment</p>	<p>Spain: 14% unemployment (high job protection) Singapore: 2% unemployment (no minimum wage)</p>
<p>Frictional unemployment</p>	<p>Singapore has been restructuring the economy, shifting towards a digital economy aiming to incorporate technology to increase productivity. One reason for this is slow workforce growth and short supply of domestic workers.</p> <p>As the economy restructures, new jobs are created and some jobs are abolished, which results in frictional unemployment as people change jobs.</p>
<p>Structural unemployment</p>	<p>During Singapore's economic restructuring, MOM said "jobs and skills mismatches will continue to be a challenge". SkillsFuture is a government program aimed at reskilling the workforce through training to gain skills that are in demand.</p>

	Citizens are provided with credit that can only be used to go to a training programme.
Seasonal unemployment	<p>Liberia: agriculture employs 70% of the population</p> <p>This would result in high seasonal unemployment, as most of the workforce is only required during peak periods, the harvesting and planting of crop support</p>
Cyclical unemployment	<p>2008 financial crisis sent many economies into recession, which increased cyclical unemployment</p> <p>In the US, before the financial crisis in Dec 2007, unemployment was 5%. At the end of the financial crisis in 2009, unemployment was 9.5%.</p>
High inflation	<p>Argentina: 50%</p> <p>Central bank increasing money supply by printing money to finance the government budget deficit, which creates inflation. The depreciation of the peso has worsened inflation, as imports become more expensive, domestic demand increases and firms have less incentive to cut costs</p>
Target inflation	Singapore, US, China - 2%
Deflation	<p>Japan has been experiencing periods of deflation since the late 1990s, due to the declining, aging population, strict immigration laws, and declining productivity growth. Japan is utilising negative interest rates to make money available for cheaper, buying back bonds to increase money supply in the economy, and introducing new visas to allow blue-collar workers to emigrate to Japan</p>
High economic growth	<p>India, referred to as the world's fastest growing major economy, around 7%. Growing population, privatisation of oil, coal and airline, tax reform, all helped increase growth.</p>
Low economic growth (2 examples)	<p>Jamaica, 1.8% GDP growth rate. Heavy debt from the failure of state owned enterprises in the past, worsened by the financial crisis, led to high unemployment, currently around 9%, and slow economic growth.</p> <p>Eurozone growth is slowing. 1.9% growth in 2018, but only 0.2% growth from Q3 to Q4 of 2018. Projected growth for 2019 reduced to 1.3%. Reason: Italy entered recession, France low growth, trade tensions between US China and Europe, uncertainty over Brexit.</p>
Equal distribution of income	<p>Norway Gini Coefficient: 0.23</p> <p>Public education, including university, is free so everyone has an equal opportunity to earn a high income. Progressive taxes, long term unemployment benefits help redistribute income.</p>



<p>Unequal distribution of income</p>	<p>South Africa Gini Coefficient: 0.63 Over half of population in poverty Income distribution is worsening, not enough new jobs are being created, and the jobs that are being created are high-skill jobs, not accessible to those in poverty. Effects of apartheid have also left many in a poverty trap, with no education and no low-skill job opportunities.</p>
<p>Expansionary fiscal policy</p>	<p>Barack Obama's economic stimulus package, ended the recession following the 2008 financial crisis. Cut taxes by \$290 billion, spent \$220 billion in unemployment benefits, allocated \$275 billion to federal contracts to create jobs. Helped build consumer confidence after the recession and reduce unemployment</p> <p>830</p>
<p>Contractionary fiscal policy</p>	<p>Suggested by the IMF to Argentina when they made a deal in 2018. Higher taxes would allow Argentina to finance some of its debt, and lower government spending prevents worsening the debt</p> <p>In the 90s, Bill Clinton raised income taxes from 28% to 36% for high income earners. Corporate tax also increased from 34% to 36% for corporations. Inflation fell from 6% to 3%. However, unemployment increased</p>
<p>Expansionary monetary policy</p>	<p>Jamaica is employing expansionary monetary policy by reducing interest rates, currently slashed to 1.25%, in order to stimulate economic growth.</p> <p>European central bank employed long-term expansionary monetary policy to stimulate economic growth, utilizing 0% and negative interest rates of -0.4% to encourage spending, but still not effective.</p>
<p>Contractionary monetary policy</p>	<p>In mid 2018, the inflation in India was rising, nearing 5%. Contractionary monetary policy was used, increasing interest rates to 6.25% to curb spending and reduce inflationary pressure.</p> <p>Argentina used 40% interest rates to try to control inflation and try to control a dive in the peso</p>
<p>Investment in human capital</p>	<p>Singapore, developing a strong public education system.</p> <p>SkillsFuture is a government program aimed at reskilling the workforce through training to gain skills that are in demand. Citizens are provided with credit that can only be used to go to a training programme.</p>

Investment in technology	Singapore committed to invest 1% of GDP into R&D, Fintech, AI, digital healthcare
Investment in infrastructure	Indonesia infrastructure investment 2017: \$28 billion to build 30km bridge linking 2 islands Reduces transportation costs - reduces costs of production
Industrial policies	Tax Cuts and Jobs Act, implemented by Trump in Dec 2017 Reduced corporate tax from 35 to 21%, resulted in increased investment to expand productive capacity
Deregulation	Singapore removed regulations on the electricity market, allowing private firms to sell electricity from Nov 2018, which increases competition Previously, only government owned SP Group was able to sell electricity
Privatisation	India privatised the coal and oil industry, removing the monopoly power of the state and allowing private firms to join. This encourages domestic investment and FDI
Trade liberalisation	USMCA - US Mexico and Canada Agreement, signed in Nov 2018, allows select products to be traded tariff-free between the three countries, e.g. automobiles, dairy, intellectual property Made to replace NAFTA, with a few changes. Not yet ratified.
Anti monopoly regulation	Singapore Grab and Uber Competition and Consumer Commission Singapore fined Grab and Uber \$13 million for merging in SEA, as it reduced competition in the market Grab was required to maintain the pricing algorithm it had pre-merger
Reducing unemployment benefits and minimum wage	US congress decided not to extend federal unemployment benefits at the end of 2013, which means unemployment benefits would end for 1.3 million people. This forced them to find a job, even if it was low paying.
Reducing labour union power	UK reducing trade union power, 2015, following a large number of strikes by London Underground and railways Increased punishment for unlawful strikes Introduced ability to fine the union for breaches of rules up to 20k pounds
Income and business tax cuts	Tax Cuts and Jobs Act, implemented by Trump in Dec 2017 Reduced corporate tax from 35 to 21%, resulted in increased investment to expand productive capacity, and reduced income taxes



Automatic stabilizers

In 2008 US spent \$220 billion in unemployment benefits in order to stabilize the economy during recession