



Goals of supply-side policies

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What are supply-side policies?

Supply-side policies are designed to encourage market forces and increase competition.

Market forces ensure resources are allocated in the best way. In 2013, Google introduced a revolutionary new product called Google Glass. It was an eyeglass-shaped head-mounted display with smartphone capabilities. It was so impressive that *Time* magazine named Google Glass one of the best inventions of the year. However, its limited battery life and many bugs led to collapsing sales. Google discontinued production only two years later.



Figure 1. Market forces ensure resources are allocated in the best way, and away from producing goods that consumers do not want, such as Google Glass.

Source: "Google Glass (https://www.flickr.com/photos/foto_db/14145074101/)" by Tim Reckmann is licensed under CC BY 2.0 (<https://creativecommons.org/licenses/by/2.0/>)



Market forces are very important in that they direct resources away from goods that consumers do not want, such as Google Glass. Supply-side policies are designed to clear obstacles so that market forces operate freely. In 2017 Google relaunched Google Glass for the business market. Again, it looks as though market forces are pressuring Google to rethink Google Glass.

The government operates supply-side policies to help grow the economy. The goals of supply-side policies include:

- Long-term growth by increasing the economy's productive capacity
- Improving competition and efficiency
- Reducing labour costs and unemployment through labour market flexibility
- Reducing inflation to improve international competitiveness
- Increasing firms' incentives to invest in innovation by reducing costs.

We will now look at how the specific goals of supply-side policies ensure long-term growth.



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Increasing the economy's productive capacity to achieve long-term growth

Supply-side policies are designed to grow the productive capacity of the economy. The productive capacity includes all resources; for example, land, labour, engines, machinery, technology, knowhow and the capital stock of the economy. Increasing the stock of labour and increasing the number of machines will increase productive capacity, and hence it will increase output.

The labour force can be increased by:

- Increasing immigration
- Lowering the working age
- Raising the retirement age
- Providing more opportunities for individuals to enter the labour force; for example, by offering subsidised childcare

The stock of capital machinery can be increased by:

- Lowering interest rates and making it cheaper for firms to borrow money to buy machinery
- Giving tax breaks to firms that invest in new machinery



Student view

Figure 2. Productive capacity in an economy is determined by the stock of factors of production in an economy. In the factory above, the productive capacity refers to the stock of sewing machines and the workers.

Credit: Getty Images Felipe Dupouy

Improving competition and efficiency

Competition forces firms to improve. Apple and Samsung constantly compete against one another to produce better smartphones and improved tablets. Over time, consumers have enjoyed gadgets with longer battery life, sharper displays and more storage. Competition drives Apple and Samsung to create higher quality products.

Competition also forces firms to lower prices. For example, according to this article in the [Atlantic ↗](https://www.theatlantic.com/business/archive/2013/02/how-airline-ticket-prices-fell-50-in-30-years-and-why-nobody-noticed/273506/) (<https://www.theatlantic.com/business/archive/2013/02/how-airline-ticket-prices-fell-50-in-30-years-and-why-nobody-noticed/273506/>), after adjusting for inflation, air fares in the US have fallen in price by 50% over the past 30 years! This is a worldwide trend. More airlines have entered the industry, and air fares have decreased. Europe has seen an explosion in budget airlines, including Easyjet, Ryanair, WOW air, Wizz Air and Flybe. Asia has welcomed Jetstar and Scoot. The significant increase in airlines has increased competition and has created a long-term downward trend in air fares.

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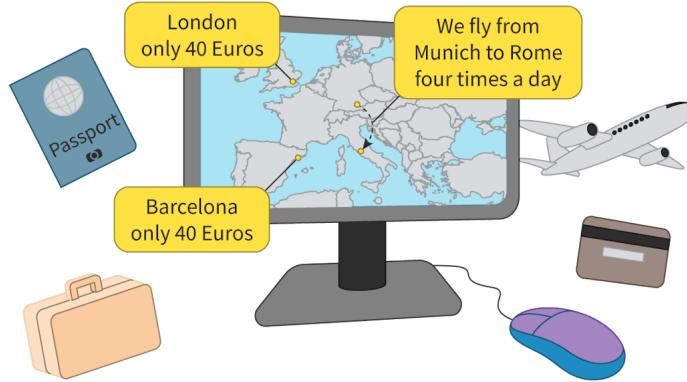


Figure 3. Supply-side policies try to increase competition and drive down prices.

More information for figure 3

The image is an illustration showing a computer monitor with a map of Europe. Flight paths are marked with arrows pointing from Munich to Rome, London, and Barcelona. Text boxes indicate pricing: 'London only 40 Euros', 'Barcelona only 40 Euros', and a flight frequency note 'We fly from Munich to Rome four times a day'. Around the monitor are travel-related items like a passport, suitcase, airplane icon, and a mouse, which enhance the theme of travel and affordable flights.

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Activity

Identify the airlines in your region. Research the trend for air fares in your region over the past two decades. What do you notice?

Student view

Increasing competition will lower prices and increase output. **Figure 4** illustrates how this operates. If the productivity of an industry improves, then it will be able to produce more with a given amount of resources, which will shift the aggregate supply curve to the right from $LRAS_1$ to $LRAS_2$, increasing output from Y_1 to Y_2 and putting downward pressure on price from P_1 to P_2 . All supply-side policies aim to increase the level of competition.



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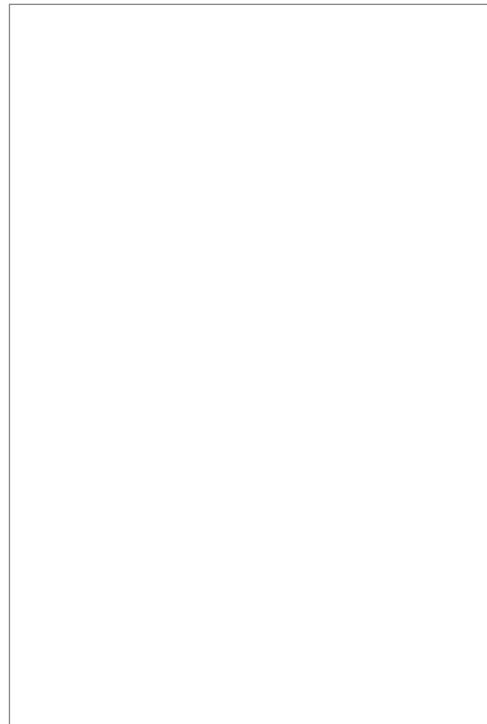


Figure 4. Supply-side policies shift out aggregate supply, which increases output and puts downward pressure on the price.

More information for figure 4

An interactive line graph represents an aggregate demand and long-run aggregate supply model in macroeconomics. The vertical axis measures the price level in dollars, while the horizontal axis measures real GDP every quarter. The aggregate demand (AD) curve slopes downward, indicating an inverse relationship between price level and output. Two vertical long-run aggregate supply (LRAS) curves, labeled LRAS₁ and LRAS₂, represent different potential output levels.

A slider at the top labeled "LRAS" allows for shifting the LRAS curve, demonstrating economic growth or contraction. As the LRAS curve shifts from LRAS₁ to LRAS₂, the equilibrium real GDP increases from Y₁ to Y₂, leading to a lower price level from P₁ to P₂. The interaction between the AD and LRAS curves illustrates how long-run economic output changes with shifts in aggregate supply, affecting inflation and GDP growth.

Reducing labour costs and unemployment through labour market flexibility

Student view

The labour market is where firms look for qualified workers, and where workers look for desirable jobs. Firms want the most qualified or talented workers at competitive wages. The equilibrium wage rate is very important, as wages are a significant cost for firms. Supply-side policies that create labour market flexibility make it easier for firms to find and hire the best workers.

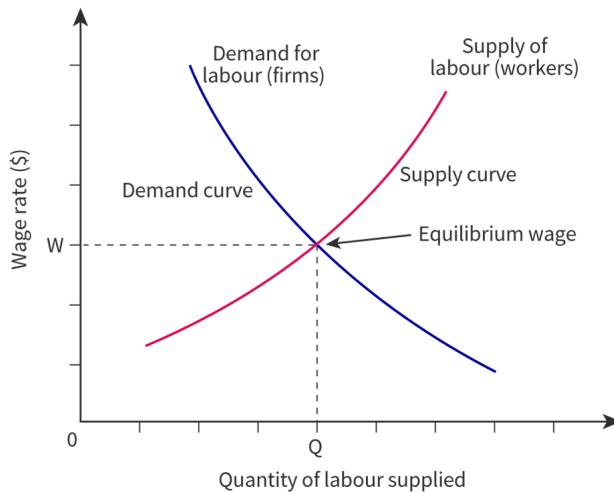


Figure 5. The labour market determines the equilibrium wage rate at W.

More information for figure 5

This graph depicts the labor market with two intersecting curves: the demand and supply curves. The X-axis represents the 'Quantity of labour supplied' while the Y-axis shows the 'Wage rate (\$)'.

The supply curve, labeled 'Supply of labour (workers)', is upwards sloping, indicating that as wages increase, the quantity of labor supplied also increases. Conversely, the demand curve, labeled 'Demand for labour (firms)', is downwards sloping, suggesting that higher wages lead to a lower quantity of labor demanded by firms.

At the intersection of the two curves, the equilibrium point is marked, indicating the equilibrium wage (W) and corresponding quantity of labor (Q). This intersection signifies the wage rate at which the supply of labor equals the demand for labor, achieving market balance.

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The goal of supply-side policies is to increase flexibility in the labour market. A flexible labour market makes it easier for firms to hire workers when they need to increase production, but also easier to dismiss workers in a downturn. A more flexible labour market allows firms to adjust wages quickly and easily. This can be achieved by

- Reducing the power of trade unions
- Reducing or removing a minimum wage
- Reducing welfare to increase the opportunity cost of being unemployed
- Increasing employment agencies to link the unemployed with suitable vacancies

Reducing inflation to improve international competitiveness

If a country is internationally competitive, it can sell more exports abroad. An increase in exports is a stimulus to aggregate demand and will help grow the economy. Countries can become more internationally competitive by producing either higher-quality goods or cheaper goods. If a country's inflation rate is lower than the rest of the world, that means that domestic prices are rising more slowly than the rest of the world. As a result it will have relatively competitive exports. Look at the diagram below; which country has the lowest inflation rate over time?

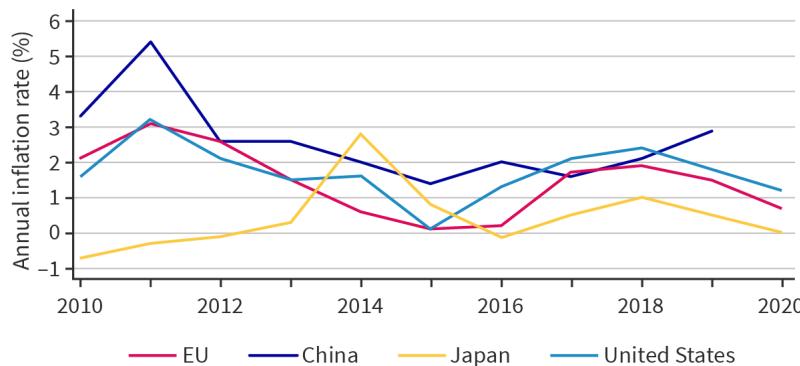


Figure 6. From 2008 to 2013, and again from 2016 onwards, Japan had a lower inflation rate than its competitors.

Source: "Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php/Consumer_prices_-_inflation"

More information for figure 6

The line graph depicts annual inflation rates from 2010 to 2020 for four regions: EU, China, Japan, and United States. The X-axis represents the years, marked from 2010 to 2020. The Y-axis indicates the annual inflation rate in percentage, ranging from -1% to 6%.

- EU (red line) starts at just below 2% in 2010, peaking at over 3% in 2011, drops to just over 0% in 2014, then slightly rises and stabilizes around 1.5% to 2% till 2020.
- China (blue line) begins at 3% in 2010, spikes above 5% in 2011, and declines steadily to under 2% in 2014. It then remains around 2% to 3% till 2020.
- Japan (yellow line) shows a low starting point below 0% in 2010, remains around this level through 2013, with a brief spike to just over 2% in 2014. Afterwards, it fluctuates between 0% and 1% until 2020.
- United States (light blue line) starts at 2% in 2010, follows a similar peak as EU and China above 3% in 2011, dips to around 1% in 2015, then slightly increases towards 2% to 3% by 2020.

Japan consistently has the lowest inflation rate among the four, especially notable during the periods of 2010-2013 and post-2016, with occurrences of deflation below 0%.

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Japan has been facing deflation for almost two decades. **Figure 6** shows that Japan had a lower inflation rate than its competitors for 8 of 10 of the years from 2008 to 2018.

As Japan's prices have increased more slowly than its competitors, its exports have become more competitive over time. In 2008, Toyota beat General Motors to become the world's largest car manufacturer. Today, car manufacturing is the largest industry in Japan, and an important driver of economic growth.

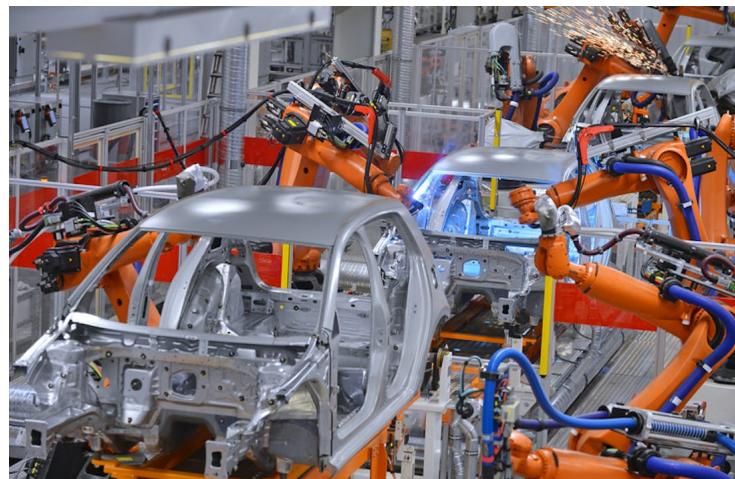


Figure 7. Low inflation has made the price of Japanese cars more competitive in the long run.

Credit: Getty Images Michael H

Increasing firms' incentives to invest in innovation by reducing the costs

Supply-side policies can be designed to encourage firms to innovate as a way to reduce costs. If firms invest in research and development, they can create new technologies. New techniques, production methods and knowhow can drive down costs. Ford Motor Company was the first to fully utilise the assembly line to produce cars. They reduced the time it took to produce a car from 9 days to 93 minutes. Today innovation continues in car manufacture. The use of robots and computerisation have reduced production times, and therefore costs, even further.



Credit: Getty Images microolga

Figure 8. Supply-side policies can incentivise firms to invest in innovation.

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Market-based supply-side policies to increase competition

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Notebook



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✓ Important

Market-based supply-side policies are designed to increase the quality and quantity of the factors of production by allowing market forces to operate more effectively.

Policies to encourage competition

Deregulation

Regulations are rules and restrictions the government puts in place to ensure that firms behave in a way that is best for social welfare. For example, the government might have regulations about where firms can deposit toxic waste, the way that nutritional information is displayed on cereal boxes, or airline safety standards.



Figure 1. In some countries governments regulate the way firms display nutritional information on food.

Credit: Getty Images David Malan

More information for figure 1

The image shows a person's hand holding a cereal box. The side of the box displays a detailed nutritional information table for the cereal. At the top, there's a heading "Nutritional Information." Below, the table has columns: "Typical Nutrition," "Per 100g," "Per 40g Serving," and "Per 40g with 220ml of skimmed milk." It includes rows for Energy (1517kJ/364kcal for 100g), Protein (11.7g per 100g), Glycemic Carbohydrate (58.4g per 100g) with sub-columns for sugars, Total Fat (14.5g per 100g) with sub-divisions into saturates, mono-unsaturates, polyunsaturates, and Dietary Fibre (9.0g per 100g). There is also a row for Total Sodium, which is 0mg across all categories. The background is blurred, indicating placement in a grocery or supermarket setting.



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Some people argue that regulations can incur an unfair burden on firms. For example, in the 1990s, airline industries across the world were heavily regulated. There were regulations for safety procedures, maintenance schedules, air routes and even the price of fares. Airlines argued that these regulations interfered too much and made them less efficient. In response, many countries started to remove many of the regulations on the industry. Deregulation had begun.

The effects of deregulation on the airline industry were significant. In Europe new airlines such as Ryanair and Easyjet joined the market. They adopted new practices to drive down costs. They landed at smaller, regional airports with cheaper landing fees. When Easyjet first started to operate, they adopted ticketless check-in, passengers could choose where to sit when on board, and in-flight food and drinks were an optional extra. These innovations drove down costs and allowed airlines to decrease the price of air fares.



Figure 2. Deregulating the airline industry increased routes and decreased fares.

Source: "OE-IVL - Airbus A320 - EasyJet (41764201425) ([https://commons.wikimedia.org/wiki/File:OE-IVL_-_Airbus_A320_-_EasyJet_\(41764201425\).jpg](https://commons.wikimedia.org/wiki/File:OE-IVL_-_Airbus_A320_-_EasyJet_(41764201425).jpg))" by Dylan Agbagni is in public domain.

Deregulation allows market forces to operate freely. Firms are free to pursue the least costly method of production, which makes them more efficient. Deregulation can therefore lead to greater efficiencies and lower prices.

Student view

Privatisation

Government can also encourage the free market through privatisation. Privatisation refers to when ownership of a firm is transferred from the public sector to the private sector. Privatisation hands production back to private companies. Governments often run wide-ranging state-owned enterprises such as railways, airlines or water corporations. When these are privatised, private firms have the incentive to improve efficiency, decrease costs and increase profits. More competition will force firms to provide goods or services at reasonable prices, and there will be a range of choices available to consumers. Privatisation therefore creates greater efficiencies in the economy.

Case study

Creating greater efficiencies in the market through privatisation

Governments may choose to privatise particular industries such as railways to increase efficiency, drive down costs and lower prices. However, privatising railways has had mixed results.

The UK has privatised its railways, and has seen successes in terms of more routes that operate more often. This has given consumers more choices and more convenient travel. However, this has come at a high cost. Some argue that the quality of services has declined, and there are on average 3000 delays across the network per day.

Four serious accidents have occurred since privatisation. The incidents exposed considerable deficiencies in safety systems and procedures, signalling equipment and traffic control.

Proponents of privatisation argue that the railway network and rolling stock was already subject to chronic underinvestment before privatisation took place. Through privatisation the government was attempting to pass on the cost of rebuilding the network to the private sector.

Read more about the privatisation of British railways [here ↗](https://www.dailymail.co.uk/news/article-2930561/How-rail-ticket-prices-TREBLED-privatisation-open-returns-cost-flights-European-cities.html) (<https://www.dailymail.co.uk/news/article-2930561/How-rail-ticket-prices-TREBLED-privatisation-open-returns-cost-flights-European-cities.html>).



Figure 3. The success of the privatisation of railways has been mixed.

Credit: Getty Images paul mansfield photography

India is also considering privatising its railways.

1. What are the advantages and disadvantages of privatising Indian railways?
2. On balance, what should India decide?
3. Write a report to the Indian government recommending your opinion on privatising Indian railways.

Read the article [here ↗](https://theprint.in/talk-point/should-indian-railways-be-privatised-to-prevent-it-from-going-the-air-india-way/341685/) (<https://theprint.in/talk-point/should-indian-railways-be-privatised-to-prevent-it-from-going-the-air-india-way/341685/>) to find out more.

Trade liberalisation

Student view

Trade liberalisation refers to decreasing barriers to trade with other nations. Free trade allows countries to access raw materials, goods and services from the lowest-cost centre of production. Free trade allows China to access cheap iron ore from Australia to produce steel. It allows Japan to import oil from Saudi Arabia and ensures Norway can import bananas from Ecuador. Trade liberalisation has an important role in increasing the supply side of the economy. If countries are able to access the factors of production from their cheapest source, then costs will decrease and greater efficiencies will arise.



Figure 4. Trade liberalisation allows countries like China to source cheap resources like iron ore from countries like Australia.

Credit: Getty Images Imagevixen

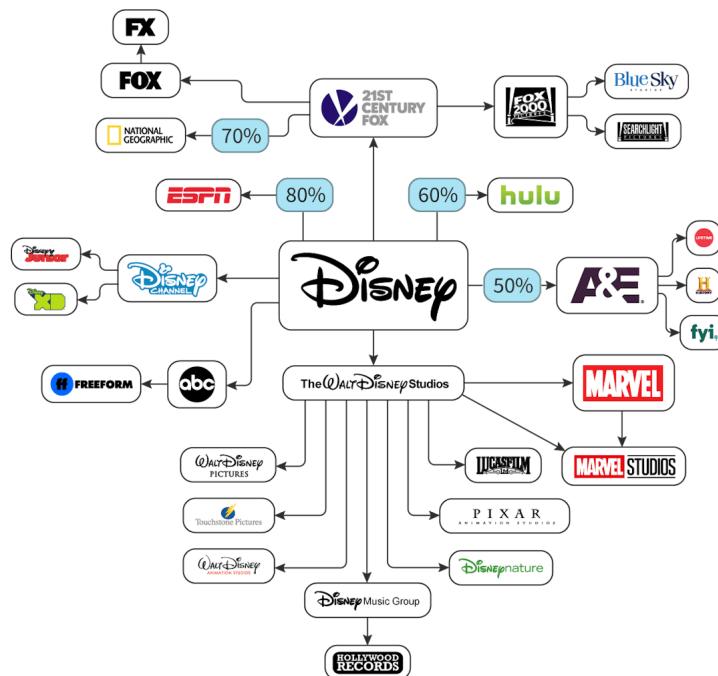
Anti-monopoly regulation

The government can ensure a competitive environment by preventing large firms, or monopolies, from becoming too big and dominating the market. Governments usually have a division in charge of overseeing competition, which assesses the behaviour of firms and legislates against any predatory actions. In addition, some mergers or acquisitions can be blocked if it is deemed that it will threaten the competitive environment.

Case study

Anti-monopoly regulation and Disney

Governments actively regulate mergers to ensure markets stay competitive. Firms merge to create a new company that will have a competitive edge, either through scale, unique products or assets it did not have before. Disney gained access to a large catalogue of films and television shows when it bought 21st Century Fox in 2019. The US government permitted this merger to occur because it actually increased competition as it gives Disney enough content to compete with Netflix and Amazon Prime.

**Figure 5.** Disney and its affiliated companies.

More information for figure 5

The image is a diagram illustrating Disney and its affiliated companies, highlighting the relationships and ownership percentages. At the center is "Disney," with connections to various entities. Key affiliations include:

- 21st Century Fox at the top, linking to FX, FOX, Fox 2000 Pictures, Blue Sky Studios, and Searchlight Pictures. National Geographic is under 21st Century Fox with 70% ownership.
- ESPN, with 80% under Disney.
- A&E Networks, including Lifetime and History, showing 50% ownership.
- Hulu, with 60% ownership by Disney.
- Marvel, with connections to Marvel Studios.
- Disney Channel, Disney Junior, and Disney XD as separate channels.
- ABC and Freeform connected under Disney.

- The Walt Disney Studios at the bottom, branching into Walt Disney Pictures, Touchstone Pictures, Walt Disney Animation Studios, Lucasfilm, Pixar Animation Studios, DisneyNature, and the Disney Music Group, including Hollywood Records.

This visual depiction conveys the broad scope of Disney's network and subsidiaries.

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Read more about it below:

- [Disney seals \\$71bn deal for 21st Century Fox as it prepares to take on Netflix](https://www.theguardian.com/film/2019/mar/20/disney-seals-71bn-deal-for-21st-century-fox-as-it-prepares-to-take-on-netflix) ↗
(<https://www.theguardian.com/film/2019/mar/20/disney-seals-71bn-deal-for-21st-century-fox-as-it-prepares-to-take-on-netflix>)
- [Disney Officially Owns 21st Century Fox](https://www.npr.org/2019/03/20/705009029/disney-officially-owns-21st-century-fox) ↗
(<https://www.npr.org/2019/03/20/705009029/disney-officially-owns-21st-century-fox>)

Do you think the government should have allowed it to go ahead? Consider the effects on stakeholders; who will win and who will lose?

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Market-based supply-side policies for the labour market

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Notebook Labour is a very important part of the supply side of the economy. Firms need skilled and productive workers. The government has a role in creating greater flexibility in the labour market.



Glossary

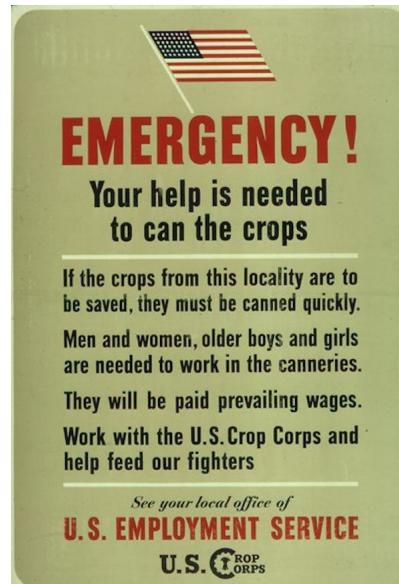
Reading
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Figure 1. An advertisement from World War II: creating greater labour market flexibility.

Source: "Emergency - Your help is Needed to Can the Crops - NARA - 513835" (https://commons.wikimedia.org/wiki/File:%22Emergency_-_Your_help_is_Needed_to_Can_the_Crops%22_-_NARA_-_513835.tif)" by U.S. National Archives and Records Administration is in public domain.

Student
view

With men away fighting World War II, many firms were short of labour. The advertisement above is an example of the US government trying to encourage women and older children to join the labour force. This was an effort to create greater flexibility in the labour market.

Policies to create greater flexibility in the labour market

A flexible labour market is essential for a competitive business environment. Being able to recruit from a suitable pool of workers with the appropriate level of skills, and to dismiss inefficient workers, is very important to businesses.

Reducing the power of labour unions

Labour unions are formal organisations that represent the interests of workers. They bargain with employers on behalf of workers for improved pay and working conditions. Firms may wish to keep down costs by slowing wage increases, while labour unions will always push for higher wages. Labour unions can use a range of tools to try and shift negotiations in their favour. They may interfere with production by recommending workers go on strike.



Figure 2. Strikes by rubbish collectors leading to an accumulation of uncollected rubbish.

Credit: Getty Images Francesco Scatena

Sometimes strikes can create interruptions to production that are so serious that economic growth is dampeden. Governments may try to reduce the power of trade unions in an attempt to maintain production and protect the supply side of the economy. Governments can create legislation or labour laws as a way to weaken labour unions. Laws may include categorising some workers as 'essential' and thereby prohibiting them from going on strike. Alternatively, governments might regulate minimum wages or working conditions to take away the need for industrial action.

Reducing unemployment benefits

Unemployment benefits are transfer payments to support families when they are out of work. They ensure that everyone has a minimum standard of living and access to food and housing. However, it can be argued that if unemployment benefits are too high, they may act as a disincentive to work. Perhaps lower benefits could increase efficiency in the labour market. It might be wise to question why this support exists in the first place. Will lowering benefits suddenly spur people on to find work? Are there enough jobs available to return to? Do some job types pay enough to cover the cost of living in the country?

Activity

Student view

Class debate: On one hand, supply-side policies suggest that governments should reduce unemployment benefits. However, an important macroeconomic goal of the government is more equal income distribution. In your class, debate: What should the government prioritise — decreasing unemployment benefits, and thus creating greater efficiencies in the economy, or protecting unemployment benefits, ensuring greater equity in the economy?

Abolishing minimum wages

In the past, governments have implemented minimum wages to ensure all workers can earn a livable wage. A minimum wage is like a price floor, where the government intervenes in the market, and sets wages above equilibrium level (W^*) to a minimum wage level. **Figure 3** illustrates that if the government abolishes the minimum wage, wages will fall from the red line labelled Minimum Wage to W^* . Firms are then prepared to employ more workers, increasing from L_d to L^* . This will increase employment from L_d to L^* .

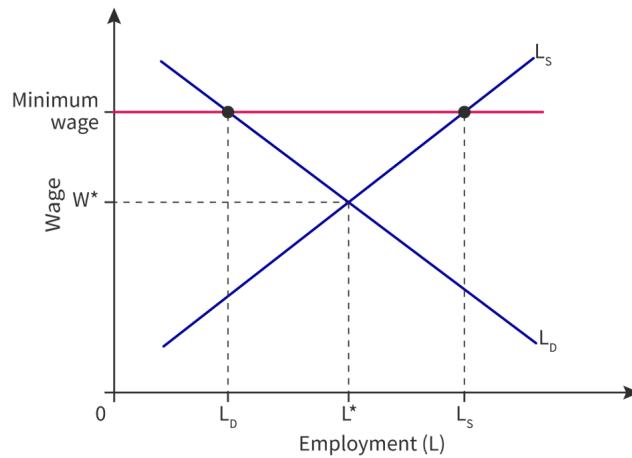


Figure 3. A minimum wage creates unemployment.

More information for figure 3

The graph depicts the relationship between wage levels and employment, using a standard supply and demand model. The X-axis is labeled "Employment (L)" and extends from 0 to L_s , indicating the level of employment. The Y-axis is labeled "Wage" and includes a reference to " W^* " as the equilibrium wage level.

There are two diagonal lines representing supply and demand. The demand line slopes downwards from left to right, intersecting the supply line, which slopes upwards from left to right. The intersection of these lines indicates the equilibrium point (L^*, W^*) , where the supply of labor equals the demand.

A horizontal line marks the "Minimum wage" level, set above the equilibrium wage (W^*), intersecting the supply and demand lines at two points: one on the demand line at L_d (indicating a lower employment level) and one on the supply line at L_s (representing a surplus of labor).

Overall, the graph illustrates how setting a minimum wage above the equilibrium wage results in decreased employment (from L^* to L_d) and creates unemployment due to the surplus of labor (L_s) willing to work at the minimum wage level but not employed.

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Student view

Reducing or abolishing a minimum wage gives firms more flexibility to determine wages according to the productivity of labour and the supply and demand forces on the labour market. However, it may also enable exploitation of workers, especially low-skilled ones, and will increase the income gap in society .

Complete section with 3 questions

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Incentive-related supply-side policies

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Notebook Incentive-related supply-side policies are designed to encourage the supply side to increase, specifically labour and capital. In this section we will explore how the government can give incentives to individuals to offer more labour, and incentives to firms to accumulate more capital.



Glossary Incentive-related policies include:

- Personal income tax cuts
- Cuts to business and capital gains tax

Personal income tax cuts

Personal income tax cuts encourage individuals to work more hours. When taxes are lowered, disposable income rises, and workers receive a larger reward for every additional hour they work. Essentially, income tax cuts will give individuals the incentive to work more. They will also serve as an incentive for unemployed people to find a job faster as the opportunity cost of being unemployed is higher.

If these tax cuts are permanent, and individuals maintain extra working hours, this will shift out the long -run aggregate supply from LRAS₁ to LRAS₂. This will cause a fall in the price level from P₁ to P₂, and will also increase real GDP from Y₁ to Y₂.

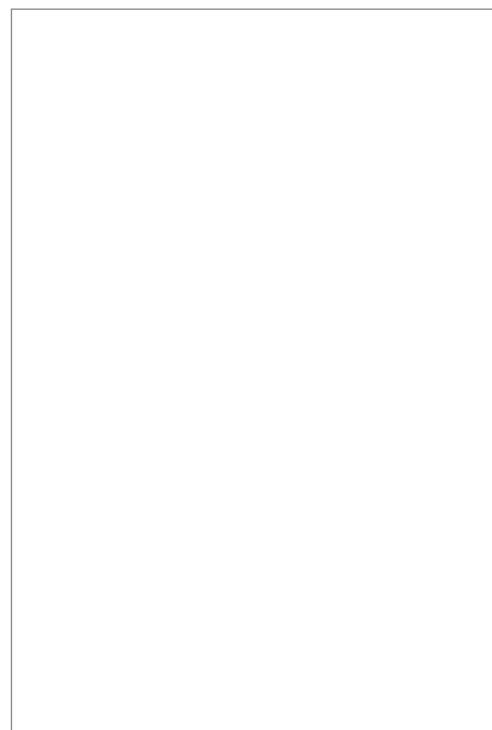
Student
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Figure 1. Cutting income taxes will shift out aggregate supply, and increase output.

[More information for figure 1](#)

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An interactive line graph represents an aggregate demand and long-run aggregate supply model in macroeconomics. The vertical axis measures the price level in dollars, while the horizontal axis measures real GDP every quarter. The aggregate demand (AD) curve slopes downward, indicating an inverse relationship between price level and output. Two vertical long-run aggregate supply (LRAS) curves, labeled LRAS₁ and LRAS₂, represent different potential output levels.

A slider at the top labeled "LRAS" allows for shifting the LRAS curve, demonstrating economic growth or contraction. As the LRAS curve shifts from LRAS₁ to LRAS₂, the equilibrium real GDP increases from Y₁ to Y₂, leading to a lower price level from P₁ to P₂. The interaction between the AD and LRAS curves illustrates how long-run economic output changes with shifts in aggregate supply, affecting inflation and GDP growth.

Governments must think carefully about income tax rates. If tax rates are too low, the government will not receive much revenue. But the government cannot simply keep increasing its revenue by raising tax rates higher and higher. American economist Arthur Laffer argued that if income taxes are too high, it will act as a disincentive for individuals to work, so individuals will work fewer hours and government tax revenue will actually decrease.

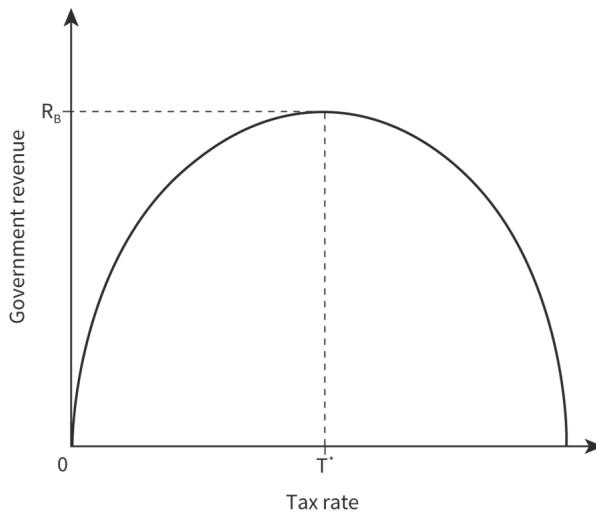


Figure 2. The Laffer curve.

More information for figure 2

Student view

The graph displays the Laffer Curve, demonstrating the relationship between tax rate and government revenue. The X-axis represents the tax rate, starting from 0% on the left to 100% on the right, and the Y-axis represents government revenue. The curve is parabolic, illustrating that as tax rates increase from 0, government revenue also increases, reaching an optimal point at the tax rate T , labeled on the X-axis. Beyond this optimal point, labeled T^* , further increases in tax rate result in decreased government revenue, eventually reaching zero revenue at a 100% tax rate. The point of maximum revenue is indicated at R_B on the graph.

[Generated by AI]

Consider the model in **Figure 2** above, which is known as the Laffer curve. If the tax rate is set at 0%, the government will not collect any revenue. However, if the tax rate is set at 100%, then the government will not collect any revenue either, as workers have absolutely no incentive to work. Somewhere in between lies the optimal tax rate T^* . At point R_B the government is able to maximise government revenue. According to Laffer, at a tax rate above T^* , cutting taxes will lead to an increase in government revenue.

Case study

The Laffer curve

In 2019, President Trump awarded Arthur Laffer the Presidential Medal of Freedom.

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Figure 3. Arthur Laffer receives the Presidential Medal of Freedom.

Source: "President Trump Presents the Medal of Freedom (48099861262)"

([https://commons.wikimedia.org/wiki/File:President_Trump_Presents_the_Medal_of_Freedom_\(48099861262\).jpg](https://commons.wikimedia.org/wiki/File:President_Trump_Presents_the_Medal_of_Freedom_(48099861262).jpg))
by The White House is in public domain.

The ceremony was met with mixed feelings from fellow economists.

Laffer argued that income tax cuts led to greater incentives for workers, but most importantly that tax cuts would pay for themselves. According to Laffer, the tax cuts would generate so much economic growth that governments would collect more tax revenue.

Is this the case?

In 2017, the US government cut federal income taxes.

1. What was the effect on GDP in 2018, 2019 and 2020?
2. What was the effect on the government budget in 2018, 2019 and 2020?

In your opinion, were the tax cuts a success? Did they pay for themselves?

To find out more, read the articles below.

[Trump awards Presidential Medal of Freedom to Arthur Laffer, tax-cut guru ↗](https://www.nytimes.com/2019/06/19/us/politics/arthur-laffer-medal-of-freedom.html)
(<https://www.nytimes.com/2019/06/19/us/politics/arthur-laffer-medal-of-freedom.html>).

[Trump is giving Arthur Laffer the Presidential Medal of Freedom. Economists aren't smiling. ↗](https://www.washingtonpost.com/politics/2019/06/01/trump-is-giving-arthur-laffer-presidential-medal-freedom-economists-arent-laughing/)
(<https://www.washingtonpost.com/politics/2019/06/01/trump-is-giving-arthur-laffer-presidential-medal-freedom-economists-arent-laughing/>).

Cuts to business tax and capital gains tax

Firms make money in two ways:

- profits from the sale of goods and services
- capital gains through investments or the sale of assets (such as shares or a factory)

Each of these money-making activities are taxed in different ways. To incentivise firms to produce more, the government can cut profit/corporate taxes (which are taxes on the sale of goods and services) and/or cut capital gains tax (which is a tax on the capital gains firms make from investments or the sale of assets).

Student view



Cutting corporate taxes

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A government may decrease corporate taxes so that firms earn a higher reward for every additional unit produced and will be left with more profits for investment in additional production capacity. This will increase the supply side of the economy and grow the economy.

Activity

Large corporations and corporate taxes

Look at the map below. It shows the full range of European corporate tax rates. Imagine you are a firm in Europe and you can locate your headquarters in any country you wish. Which country would you choose?

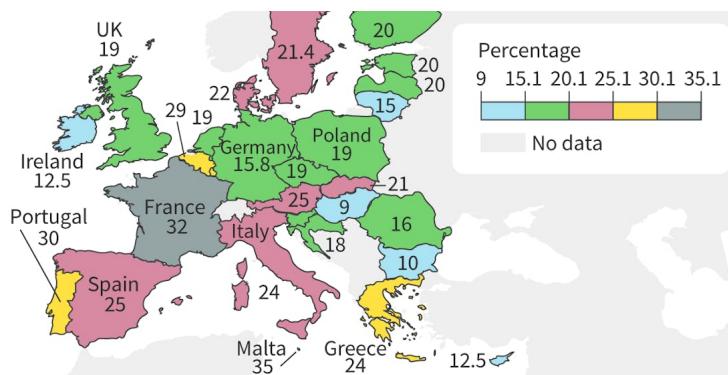


Figure 4. A map showing the full range of corporate tax rates in Europe.

Source: "OECD (<https://stats.oecd.org/Index.aspx?QueryId=78166>)"

More information for figure 4

Often large corporations escape paying taxes by locating their headquarters in low tax countries like Ireland.

Prior to 2015, Apple's European headquarters were located in Ireland. Much of its non-US sales were routed through its Irish office. This allowed Apple, one of the most profitable companies in the world, to pay a corporate tax rate of 5%. This was less than the 12.5% Irish corporate tax rate, and considerably less than the 35% top corporate tax rate levied in the US. This was achieved through a tax loophole called the 'Double Irish'. Although it was legal at the time, the EU was quick to update its tax regulations to close this loophole. Soon, Apple started to look for a new home for its headquarters — and its tax centre. By 2017 Apple successfully relocated itself to the Channel Island of Jersey with a corporate tax rate of 0%.



Student view

In 2017, Apple made USD 44.7 billion on its sales outside the US, but paid USD 1.65 billion in taxes.

Write a blog post on one of the following topics. Ask your friends and family to comment on your blog.

'Firms have a responsibility to maximise profits, and that includes minimising taxes'

'Governments should coordinate to create a consistent corporate tax rate across all nations'

Find out more about Apple in these articles.

- [After a tax crackdown, Apple found a new shelter for its profits ↗
\(https://www.nytimes.com/2017/11/06/world/apple-taxes-jersey.html\)](https://www.nytimes.com/2017/11/06/world/apple-taxes-jersey.html)
- [Apple's cash mountain, how it avoids tax, and the Irish link ↗
\(https://www.irishtimes.com/business/apples-cash-mountain-how-it-avoids-tax-and-the-irish-link-1.3281734\)](https://www.irishtimes.com/business/apples-cash-mountain-how-it-avoids-tax-and-the-irish-link-1.3281734)

The government may choose to offer a lower tax burden, or lower costs for smaller firms. For example, in the US, firms with under 50 full-time employees are not required to provide group health insurance to their employees.



Decreasing the capital gains tax

Overview

(/study/app/186-cid-754025/) A capital gains tax is the tax a firm pays on the profit it makes from selling an asset. For example, if a firm owns a factory, and finds it outgrows the building, it may sell it at a profit and pay capital gains tax on that profit.

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- A fall in the capital gains tax will benefit firms from improving properties that they own. If they purchase a factory, and refit it with updated ventilation, climate control and air quality, a firm may be able to sell it at a profit. Hence, firms have an incentive to constantly improve and update factories, buildings and properties.

Complete section with 3 questions

Start questions

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Interventionist supply-side policies

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What does it mean for supply-side policies to be interventionist?

Interventionist supply-side policies involve the government directly intervening in the economy to increase the quantity or quality of the factors of production. This is in contrast to market-based supply-side policies, which aim to remove or reduce obstructions to market forces. By the supply side, we include all the factors of production, so any government regulations to improve the quantity or quality of land (provision of infrastructure), labour (education and health care), capital (industrial policies, research and development) and enterprise.

In China, we see this in the development of so-called 'ghost cities' (<https://www.abc.net.au/news/2018-06-27/china-ghost-cities-show-growth-driven-by-debt/9912186>) which the government has built entire communities, to increase the capital stock of housing, retail space and manufacturing centres. Examples of such areas include the Kangbashi District of Ordos, the Yujiapu Financial District near Tianjin, and the Meixi Lake development.



Figure 1. Ghost cities waiting patiently for residents.

Credit: Getty Images Jaris Ho



Student
view

How can the government intervene in the market to improve the supply side?

Interventionist supply-side policies are where the government deliberately increases the quantity or quality of the factors of production to stimulate the supply-side of the economy.

Interventionist policies include:

- education or other forms of training
- improving quality, quantity and access to health care
- research and development
- provision of infrastructure
- industrial policies

Education and training

Government spending on education and training may improve human capital. Knowledgeable and well-trained individuals are higher-quality workers. Governments will often work in partnership with firms to provide high-quality training through apprenticeship schemes. Firms benefit because they have access to cheap workers who are trained on

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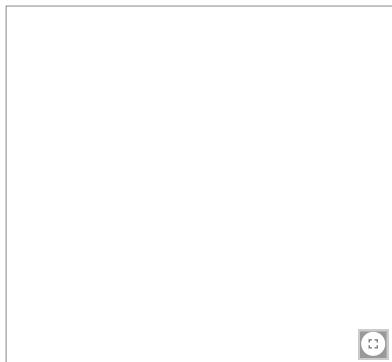
the job, while also attending specialist trade schools that are owned and paid for by the government. At the same time, young people enjoy stable employment and training and earn a qualification. Furthermore, firms will have access to a large pool of qualified workers in the future.



Figure 2. Governments can provide free training to improve the quality of labour.

Credit: Getty Images Maskot

Higher-quality labour will increase productivity in the workplace. **Figure 3** illustrates that, as productivity improves, the LRAS curve shifts to the right, promoting economic growth.



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Figure 3. A permanent increase in productivity in the labour market will increase the LRAS.

More information for figure 3

An interactive line graph represents an aggregate demand and long-run aggregate supply model in macroeconomics. The vertical axis measures the price level in dollars, while the horizontal axis measures real GDP every quarter. The aggregate demand (AD) curve slopes downward, indicating an inverse relationship between price level and output. Two vertical long-run aggregate supply (LRAS) curves, labeled $LRAS_1$ and $LRAS_2$, represent different potential output levels.

A slider at the top labeled "LRAS" allows for shifting the LRAS curve, demonstrating economic growth or contraction. As the LRAS curve shifts from $LRAS_1$ to $LRAS_2$, the equilibrium real GDP increases from Y_1 to Y_2 , leading to a lower price level from P_1 to P_2 . The interaction between the AD and LRAS curves illustrates how long-run economic output changes with shifts in aggregate supply, affecting inflation and GDP growth.



Improving quality, quantity and access to health care

Overview

(/study/app/study/app/pp/sid-186-cid-754025/) Access to quality health care ensures that the workforce is healthy, energetic and more able to be focused and to work hard. A healthy workforce is more productive.

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- During the COVID-19 outbreak of 2020, the Chinese government closed factories and asked citizens to stay home to stop the spread of the virus. Manufacturing in China plummeted. The government quickly built temporary hospitals to increase the capacity of healthcare.

Many other countries had similar experiences with closed factories and businesses, and the readiness of the health care system played a role in how fast the economies were able to reopen. It is in the interest of the economy as a whole that all individuals have access to quality health care so all workers are healthy and able to work.



Figure 4. Empty streets in China as a result of the lockdown from the COVID-19 virus.

Credit: Getty Images lingqi xie

⌚ Making connections

In [subtopic 2.8 \(/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29875/\)](#) of the course you investigated market failure. Using your knowledge of positive externalities, what are the additional benefits to the economy associated with education, training and health care?



Student view

Research and development

Research and development involves any spending directed towards the innovation and improvement of products and processes. In the longer term, innovation has the ability to improve efficiency. Countries spend billions encouraging and subsidising research and development, and many have dedicated government institutions to support such endeavours.

Research and development by NASA as part of the space race has led to many innovations, such as LEDs. LED lighting is both cheaper and brighter than light bulbs or fluorescent lighting. Over time, we have seen increased use of LEDs, from digital watches to traffic lights. Another important crossover in technology has been the introduction of freeze-dried foods. This development has increased the expiry date for food, giving us greater security and flexibility in our food supply.

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Figure 5. An early digital watch using LED displays developed by NASA.

Source: "Vintage Pulsar Calculator Watch, The First Calculator Watch In The World, Case Made In Switzerland, Electronics Module Made In USA By Time Computer Inc., Circa 1975 (15547884728)"

([https://commons.wikimedia.org/wiki/File:Vintage_Pulsar_Calculator_Watch,_The_First_Calculator_Watch_In_The_World,_Case_Made_In_Switzerland,_Electronics_Module_Made_In_USA_By_Time_Computer_Inc.,_Circa_1975_\(15547884728\).jpg](https://commons.wikimedia.org/wiki/File:Vintage_Pulsar_Calculator_Watch,_The_First_Calculator_Watch_In_The_World,_Case_Made_In_Switzerland,_Electronics_Module_Made_In_USA_By_Time_Computer_Inc.,_Circa_1975_(15547884728).jpg))
by Joe Haupt is licensed under CC BY-SA 2.0 (<https://creativecommons.org/licenses/by-sa/2.0/deed.en>)

Activity

Can you find other examples of space technology in your home? Here is a hint: look in the kitchen!

Military research and development has also provided innovations that have been passed on to the wider economy. The military developed the Global Positioning System (GPS) in the 1970s. They created a network of satellites to help pinpoint accurate positions for missile launches by submarines. Today, GPS can be found in every smartphone.

✓
Student view



Figure 6. Using GPS on a smartphone.

Credit: Getty Images Witthaya Prasongsin

International Mindedness

Sometimes countries protect innovation and ideas such as GPS from other countries. Under what circumstances should technology be shared with other countries?

Important medicines like penicillin are in everyday use because of government research and development. Although it was discovered in the 1920s, it was not until the government developed the drug for military hospitals during World War II that penicillin attained widespread use. Today, it is considered one of the safest drugs we have to fight bacteria.

Provision of infrastructure

Infrastructure includes roads, railroads, airports, telecommunications, electricity networks and other large-scale capital projects. Infrastructure provides the backbone of production in a country.

China has transformed its economy through an unprecedented boom in infrastructure. A strong infrastructure makes transporting raw materials and finished goods and services much easier, which lowers production costs. Today, China has the largest high-speed rail network and the longest road expressway in the world. China built more skyscrapers in 2018 than anywhere else in the world, at any time in history. Not only has this infrastructure boom driven economic growth, it is also a significant driver for the supply side of the economy.



Figure 7. China has been transformed by investment in roads and rail.

Credit: Getty Images kan wang

Activity

Student view

Make an inventory of infrastructure built in your town or city. Identify which structures were built by private firms. Which structures were fully funded by the government? What do you notice?

Industrial policies

Industrial policies consist of targeted government interventions to drive the development of specific economic sectors. The goal is to increase the productivity of these specific industries and turn them into engines of growth and employment. The aim of industrial policies is to address market imperfections.

One important industrial policy is import substitution. This is where the government targets a particular industry with the goal to switch production from abroad to the domestic economy. The government may levy high tariff barriers or introduce quotas to decrease imports into the domestic economy. This will encourage consumers to buy goods from domestic firms. At the same time, the government may offer assistance to support local industries to increase production of goods.



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Figure 8. Import substitution policies are often placed on industries with large economies of scale.

More information for figure 8

The interactive line graph represents the long-run average cost (LRAC) curve, illustrating how average costs change with different levels of output. The graph consists of a horizontal axis representing output and a vertical axis representing average cost. A red curve depicts the LRAC, showing how costs decrease initially due to economies of scale and then rise due to diseconomies of scale.

A key feature of the interactive is the adjustable slider positioned above the graph. This slider allows users to explore different stages of production and their impact on costs. When the slider is placed toward the left, only the downward-sloping portion of the LRAC curve is displayed. This suggests a phase where increasing production leads to lower average costs, highlighting economies of scale. The graph labels two price points, P1 and P2, along with an output level, Q1, to indicate cost reduction as production expands.

When the slider is moved further to the right, the full U-shaped LRAC curve is revealed. An additional output level, Q2, is introduced at the lowest point of the curve, representing the minimum efficient scale—where costs are at their lowest before increasing again. This change illustrates how, after a certain production level, further expansion leads to rising average costs due to factors like inefficiencies and resource constraints.

The interactive allows users to dynamically adjust output levels and observe cost changes in real time. It effectively demonstrates key economic principles related to economies and diseconomies of scale, providing a clear visual representation of how firms optimize production costs over the long run. The slider interaction helps users intuitively understand the relationship between output and cost efficiency in different production scenarios.



In the 1980 and 1990s, the Malaysian government wanted to create a domestic car industry, and so placed a 200% tariff on imported cars. This gave Malaysian consumers little choice but to buy the Malaysian Proton. Car industries are often characterised by large economies of scale. So as more consumers switched to buying Protons, increasing quantity from Q₁ to Q₂ in **Figure 8**, average costs were driven down from P₁ to P₂. The goal of this import substitution policy was to lower costs so that the Malaysian car industry is more efficient. The tariff rates have been since reduced from these high levels.

Complete section with 3 questions

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3. Macroeconomics / 3.7 Supply-side policies

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Supply-side policies are designed to increase productivity and competition and to increase the supply side of the economy. However, some economists argue that supply-side policies on their own are not enough to achieve economic growth. There must also be a corresponding increase in aggregate demand for the increase in the productive capacity of an economy to be fully realised.

Some supply-side policy tools will also have demand-side effects, such as:

- Industrial policies
- Cutting personal income taxes
- Reducing unemployment benefits
- Abolishing the minimum wage

Industrial policies

Industrial policies (as we discussed in [section 3.7.5 \(/study/app/pp/sid-186-cid-754025/book/interventionist-supplyside-policies-id-30548/\)](#)) consist of targeted government interventions to develop strategic industries. In the previous section we looked at the car industry in Malaysia. The Malaysian government placed a 200% tariff on imported cars. This encouraged domestic consumers to buy the Malaysian Proton. But this policy not only benefited Proton; it also created demand-side effects.



Figure 1. Industrial policies that encourage the production of the Proton will also have demand-side effects.

Source: "[Proton-Persona-Red](#) (<https://en.wikipedia.org/wiki/File:Proton-Persona-Red.jpg>)" by DRIVEN COMMUNICATIONS SDN BHD is licensed under CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0/deed.en>)

The factory had to employ more workers. Linkage industries, such as rubber producers, plastic mouldings and glaziers, also had to hire more workers. This increased incomes and in turn increased consumption. The increase in consumption will increase aggregate demand and hence push out the demand side of the economy.

Cutting personal income taxes

Cutting taxes increases disposable income for workers. From a supply-side point of view, higher wages will induce workers to work more hours, and will shift out the aggregate supply curve from $LRAS_1$ to $LRAS_2$. From a demand-side point of view, higher disposable income will increase consumption and shift out aggregate demand from AD_1 to AD_2 . This

will increase real GDP from Y_1 to Y_2 , and the effect on the price level is indeterminate at P. In this way, cutting personal taxes has an expansionary effect on both the supply side **and** the demand side.

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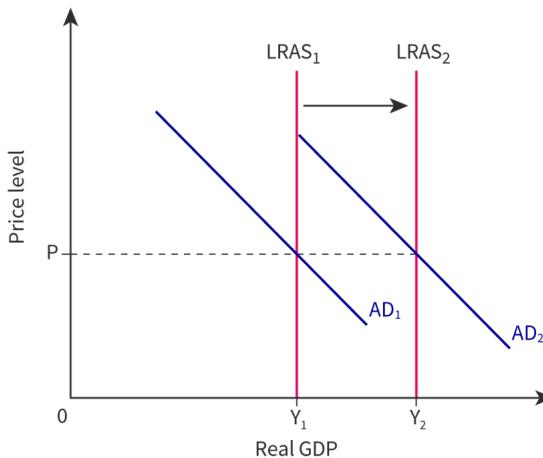


Figure 2. Cutting personal taxes can shift out both the supply side and the demand side.

More information for figure 2

The graph illustrates shifts in both aggregate supply and demand due to cuts in personal taxes. The X-axis represents Real GDP, and the Y-axis represents the Price level. Initially, aggregate supply is at LRAS₁ and moves to LRAS₂, indicating an outward shift represented by a rightward arrow, due to higher wages inducing more work hours. Similarly, the aggregate demand curve shifts from AD₁ to AD₂, also moving right. This shift is due to increased consumption from higher disposable income. The initial equilibrium is at point Y₁, moving towards a new equilibrium at Y₂. Price level is indicated by a dotted horizontal line at point P, which remains indeterminate. The overall trend shows an increase in real GDP from Y₁ to Y₂ as a result of the shifts in both aggregate supply and demand.

[Generated by AI]

Making connections

Student view

There are many crossovers between demand-side and supply-side policies. Income tax cuts and corporate tax cuts are both demand-side and supply-side policies. How do taxes affect both the demand side **and** the supply side of the economy?

Whereas tax cuts stimulate both the supply side and the demand side of the economy, the supply-side tools below slow down the demand side of the economy.

Reducing unemployment benefits

If the government reduces unemployment benefits, it may give an incentive to individuals to look harder for employment, or perhaps to accept jobs with lower wages. However, this supply-side policy has demand-side effects too.

Reducing unemployment benefits reduces an important source of income for those individuals without jobs. They will have no choice but to cut back on any discretionary spending. This decrease in consumption will decrease aggregate demand, leading to a fall in real GDP from Y_1 to Y_2 , as illustrated in **Figure 3**.

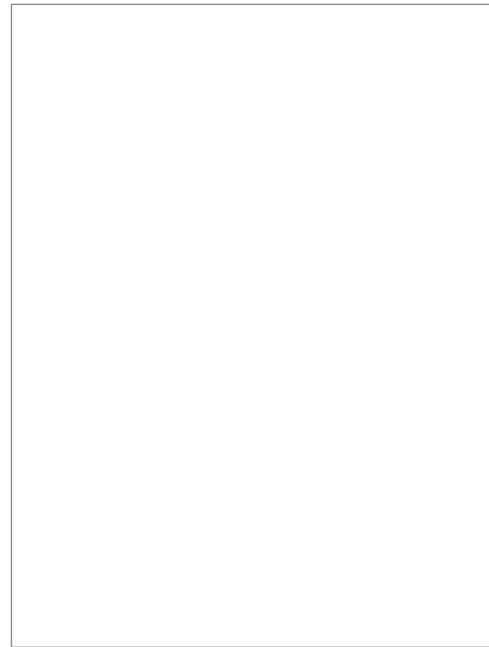


Figure 3. Reducing unemployment benefits will decrease consumption, which will decrease aggregate demand and lead to a fall in real GDP.

More information for figure 3

An interactive line graph illustrating the macroeconomic effects of reducing unemployment benefits on aggregate demand (AD) and real Gross Domestic Product (GDP). The horizontal axis represents real GDP, while the vertical axis measures the average price level. The economy initially operates at equilibrium, where the AD₁ curve intersects the AS curve, setting output at Y₁ and the price level at P₁.

A slider labeled AD allows us to adjust aggregate demand levels, visually demonstrating how a reduction in unemployment benefits shifts the AD curve leftward from AD₁ to AD₂. This shift occurs as lower benefits reduce household disposable income, leading to a decline in consumption. As a result, real GDP contracts from Y₁ to Y₂, and the price level falls from P₁ to P₂, illustrating the deflationary impact of reduced demand.

While reducing unemployment benefits may encourage greater labor market participation, it can also weaken aggregate demand by limiting consumer spending. The overall impact depends on whether the increase in labor supply outweighs the decline in demand, highlighting the trade-offs and complexities of supply-side policies in different economic conditions.



Before decreasing unemployment benefits, governments must decide which effect will be larger: the expansionary effect on the supply side or the deflationary effect on the demand side. In times of recession, when the number of jobs available is falling, reducing unemployment benefits will not encourage individuals to find jobs that do not exist. Therefore, during a recession, this supply-side policy will be ineffective.

Abolishing the minimum wage

From a supply-side point of view, abolishing the minimum wage will lower labour costs for firms. Facing lower costs, firms will increase output and, in doing so, hire more workers. From this perspective, abolishing the minimum wage will increase employment and stimulate the economy.

However, from a demand-side point of view, abolishing the minimum wage will decrease incomes for the poorest workers. They will have to cut back expenses and decrease consumption. This will decrease aggregate demand, and real GDP will fall.

Case study

What is the driver of economic activity?

One core debate in economics is: what is the driver of economic activity? Supply or demand? Are supply-side policies on their own enough to stimulate the economy? Jean-Baptiste Say, an early economist, argues that yes — supply-side policies are enough.



Figure 4. Jean-Baptiste Say — the man behind Say's law.

Source: "Jean-baptiste Say" (https://commons.wikimedia.org/wiki/File:Jean-baptiste_Say.jpg) by unknown is in public domain.

As you recall from [subtopic 1.2 \(/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-30417/\)](#), Say's law states that **supply creates its own demand**.

Say argued that in order to produce, firms hire workers. Therefore the very act of production **creates** wages for workers, as well as profit for the entrepreneur. The worker and the entrepreneur will spend their income and demand goods and services.

According to Say, wealth is created by production, not by consumption. A worker's ability to demand goods and services is derived only from the productivity of labour.

The Great Depression of 1929 challenged Say's law.

One of the drivers of the Great Depression was the overproduction of the 1920s. Consumers were excited to purchase futuristic goods such as radios and refrigerators. Mass consumerism was driven by access to loans and credit. But by 1929, the market was saturated, and aggregate demand dropped below production levels. In the US, unemployment reached 25%.



Figure 5. John Maynard Keynes — the man who argued against Say's law.

Source: "Keynes 1933" (https://commons.wikimedia.org/wiki/File:Keynes_1933.jpg) by unknown is in public domain.

In 1936, Keynes argued that Say's law simply did not hold. Keynes said it is demand, not supply, that determines economic activity. Even if firms pay workers to produce goods and services, it doesn't necessarily mean workers will spend all of their income on buying goods and services. Workers may save.

In your class, debate: who is correct, Say or Keynes? Does supply create its own demand? Can supply-side policies succeed without stimulus from the demand side of the economy?

Find out more below.

- [Say's Law versus Keynesian Economics](https://www.aier.org/article/says-law-versus-keynesian-economics/) (<https://www.aier.org/article/says-law-versus-keynesian-economics/>)

- [11 Criticisms Against the Say's Law of Market ↗ \(https://www.economicsdiscussion.net/says-law/11-criticisms-against-the-says-law-of-market/7657\)](https://www.economicsdiscussion.net/says-law/11-criticisms-against-the-says-law-of-market/7657)

Theory of Knowledge

Economists today are still divided over the supply-side versus demand-side debate.

This article by Dylan Matthews [↗ \(https://www.vox.com/future-perfect/2019/11/20/20952151/should-minimum-wage-be-raised\)](https://www.vox.com/future-perfect/2019/11/20/20952151/should-minimum-wage-be-raised) describes the economic debate about the minimum wage. Supply-siders argue that decreasing the minimum wage saves firms money, and stimulates the economy. Demand-siders argue that decreasing the minimum wage, decreases wages, and hence aggregate demand. The economy will slow.

Knowledge question: In what ways does political ideology determine economic theory?

What does the empirical evidence suggest? As you read the article [↗ \(https://www.vox.com/future-perfect/2019/11/20/20952151/should-minimum-wage-be-raised\)](https://www.vox.com/future-perfect/2019/11/20/20952151/should-minimum-wage-be-raised), you will see a large variety of studies on the effects of a minimum wage using different research techniques and findings. Matthews summarises by stating “The varying approaches could lead to different evidence reviews drawing quite different conclusions.”

Knowledge question: In what ways can measurement (research technique) affect the outcome of an experiment (or research study) in the human sciences?

Complete section with 3 questions

[Start questions](#)



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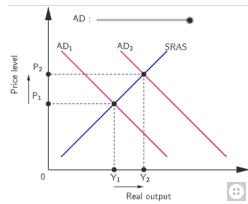
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What is fiscal policy?

Fiscal policy is when the government intervenes in the market to increase government expenditure, decrease taxes or both in order to stimulate the economy.

Fiscal policy is a demand-side policy, in that an increase in G and a fall in taxes will increase disposable income, and in doing so encourage consumption (C). See **Figure 1** below. You will see that an increase in G and C will push out the aggregate demand curve ($\uparrow AD = \uparrow C + I + \uparrow G + (X - M)$) from AD_1 to AD_2 . This will cause the price level to rise from P_1 to P_2 , and real GDP to increase from Y_1 to Y_2 .

Student
view**Figure 1. Expansionary fiscal policy.**

More information for figure 1

An interactive line graph illustrates the impact of expansionary fiscal policy on the economy. The horizontal axis represents real Gross Domestic Product (GDP) (Y), while the vertical axis measures the average price level (P). The graph features three key curves: AD1 (initial aggregate demand), AD2 (aggregate demand after fiscal policy implementation), and SRAS (short-run aggregate supply). The rightward shift from AD1 to AD2 highlights how fiscal policy influences demand.

A slider allows us to adjust the intensity of fiscal intervention, dynamically shifting the AD curve and illustrating real-time changes. As we move the slider, the graph demonstrates how increased government spending or tax reductions lead to higher aggregate demand, causing real GDP to rise from Y_1 to Y_2 and the price level to increase from P_1 to P_2 . Hovering over specific points provides additional data, enhancing the interactive experience.

While expansionary fiscal policy primarily stimulates demand-side growth, it can also have supply-side effects, such as potential increases in public debt or rising interest rates, which may reduce private investment. The graph allows us to explore the trade-offs policymakers face in balancing economic growth, inflationary pressures, and long-term fiscal sustainability.



Although fiscal policy stimulates the demand side, it can also have some unintended consequences on the supply side.

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A fiscal stimulus can push out the supply side of the economy

Fiscal policy can also stimulate the supply side of the economy. Let's take the recent experiences of Greece and China. As mentioned in [section 3.7.5 \(/study/app/pp/sid-186-cid-754025/book/interventionist-supplyside-policies-id-30548/\)](#), China has channelled significant government expenditure into building infrastructure. China has built vast communication networks, and nowhere in the world is close to the sheer scale of China's 5G network. China is aiming to increase its advantage further by developing new 5G technology. China has already established a lead in patents related to 5G technology, which may one day allow robots in production plants to be run remotely. It seems China is ready to launch itself as a world leader in telecommunications technology.

This investment has created incredible advantages for China and its ability to grow in the future.

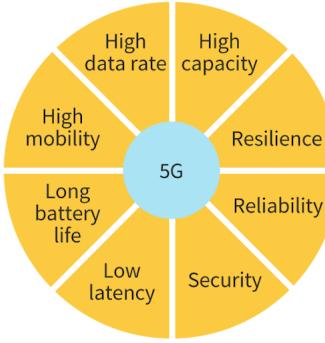


Figure 2. Capabilities of 5G technology.

More information for figure 2

For China, the supply-side effects of its investment in infrastructure have been incredibly beneficial. But this is not always the case.

In the run-up to the 2004 Olympics, Greece also invested in infrastructure. Over a seven-year period, Greece built a new airport, subway system and tram service, as well as new stadiums and sporting complexes. The 2004 Olympics were a great success. However, once the Olympics were over, the majority of the arenas and sporting complexes were closed, never to be used again. Today, the stadium, swimming pool, beach volleyball stadium and boating facilities have been left to decay. The cost to build these complexes has not been met by sustained use, and so there has been little long-term financial benefit to the Greek economy. Some economists argue that this fiscal spending has contributed significantly to Greece's debt problem. Since 2010, Greece has been bailed out three times at a cost of USD 360 billion.

✓ Important

What are the economic benefits of large international sporting events such as the Olympics?

Student view



Figure 3. Abandoned beach volleyball stadium, Athens.

Source: "Faliro Olympic Beach Volleyball Centre Athens 3"

(https://commons.wikimedia.org/wiki/File:Faliro_Olympic_Beach_Volleyball_Centre_Athens_3.JPG) by Arne Müseler is licensed under CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/deed.en>)

Activity

Research what has happened to the sporting complexes in Brazil since the 2016 Rio Olympics. Are the complexes fully utilised or left to rot? What advice can you give to Japan for facilities they will use in the Olympics in 2021?

A fiscal stimulus through investment in infrastructure is not always successful. It depends on what type of infrastructure is built. In China, increased infrastructure in roads, rail and telecommunications has led to unprecedented increases in productivity, innovation and future growth. However, the experience has been very different for Greece. Increased infrastructure in sporting facilities used in a one-off 10-day event has not led to sustainable economic growth.

Exam tip

Always use real-life examples to try and illustrate your understanding of economic theory.



A fiscal stimulus can lead to crowding out

A fiscal stimulus can sometimes lead to a fall in productivity, innovation and supply-side growth – if crowding out occurs.

Crowding out occurs when public sector spending replaces private sector spending. For example, if the private sector is prepared to invest in infrastructure, then a government that increases expenditure on infrastructure will simply replace or 'crowd out' the private sector investment.

Making connections

You will have encountered crowding out in [subtopic 3.6](#) ([/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-30469/](#)). You can read about the mechanics of crowding out in [section 2.4.3](#) ([/study/app/pp/sid-186-cid-754025/book/behavioural-economics-in-action-id-30265/](#)). One of the disadvantages of fiscal policy is the effects on the supply side of the economy if crowding out occurs.



Is it always preferable for the government to fund, plan and execute large infrastructure projects?

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In what ways is it better to leave *how to produce* in the hands of private firms? According to supply-side economists, the profit motive should drive private firms to pursue the lowest-cost method of production and, in doing so, to become more efficient.

In 1972, Hong Kong opened its first tunnel under Victoria Harbour, connecting Hong Kong Island to Kowloon and the New Territories. This tunnel was incredibly important as the financial centre for Hong Kong was located on the island. The tunnel significantly improved transport links for people and goods.

The tunnel was financed and constructed by a private firm (Cross-Harbour Holdings Limited), who were granted a concession to operate and collect tolls for 30 years. The tunnel was built with two lanes in each direction with a capacity of 80,000 cars per day.

What makes the Cross-Harbour Tunnel interesting is the efforts by the construction company to drive down costs. Underground and underwater tunnels are particularly expensive to construct. The contractor must firstly excavate the ground, and then use building materials to reinforce the tunnel. Subsurface conditions such as loose sand, extremely hard rock or noxious gases all increase costs.



Figure 4. Cross- Harbour tunnel in Victoria Harbour in Hong Kong.

Credit: Getty Images CHUNYIP WONG

✓
Student
view

Cross-Harbour Holdings Limited used a very revolutionary but cost-saving method to build the tunnel. Rather than tunnelling underneath the harbour, the firm built prefabricated sections of the tunnels elsewhere. Built above ground, the construction was much cheaper and easier. The prefabricated tubes were then floated into position in the harbour, lowered into place, and then joined underwater. The tubes were then covered over with earth on the harbour floor. It is the profit motive that drives firms such as Cross-Harbour Holdings Limited to search for the lowest cost of production, and to develop new methods like this one to build infrastructure. This method was a fraction of the cost of tunnelling – and was also much safer.

Clearly, there are circumstances when investment in infrastructure is better in the hands of private firms.

In addition, when the government attempts to build new infrastructure projects, such as tunnels, they must borrow money from the loanable funds market. This increase in demand for loanable funds bids up the interest rate. High interest rates discourage private firms from investing. This creates crowding out. Not only is investment better in the hands of private firms, but government funded infrastructure can crowd out loanable funds that would otherwise be available for other projects.



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Activity

Research another example of infrastructure built by a private firm in your city. What were the consequences?
(Hint: think about the effects on a range of stakeholders.)

Complete section with 3 questions

Start questions

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3. Macroeconomics / 3.7 Supply-side policies

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Section

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Notebook The effectiveness of supply-side policies is an interesting debate. Some politicians refer to supply-side policies as voodoo economics. As you read the section below, think about whether you agree!



Glossary

Reading
assistance

Constraints on market-based supply-side policies

Market-based supply-side policies use the forces of demand and supply to allocate resources to their best use. As you will recall from [section 3.7.1 \(/study/app/pp/sid-186-cid-754025/book/goals-of-supplyside-policies-id-30544/\)](#), market-based supply-side policies are designed to increase competition and productivity.

However, utilising free market supply-side policies has some limitations that we will explore.

Equity issues

One very important supply-side policy is to create greater flexibility in the labour market. As you recall from [section 3.7.3 \(/study/app/pp/sid-186-cid-754025/book/marketbased-supplyside-policies-id-30546/\)](#), some of the policy tools include

- Reducing the power of labour unions
- Reducing unemployment benefits
- Abolishing the minimum wage

However, there are important downsides of these policies which we need to understand. Labour unions are important institutions that represent workers to improve wages and working conditions. So if the government actively reduces the power of unions, it may lead to an erosion of wages over time. Unemployment benefits are an important safety net to ensure those individuals with no means to earn an income are able to maintain a minimum standard of living. Reducing unemployment benefits may force families from their homes. The minimum wage ensures workers have enough money to pay rent and buy groceries. Abolishing the minimum wage may push many families into poverty. Clearly these supply-side policies can create greater income inequality.

Time lags

Supply-side policies such as reducing the power of trade unions or abolishing the minimum wage require a legislative process through a parliament or congress. Any policies that require a change in legislation involve significant time lags.

Student
view

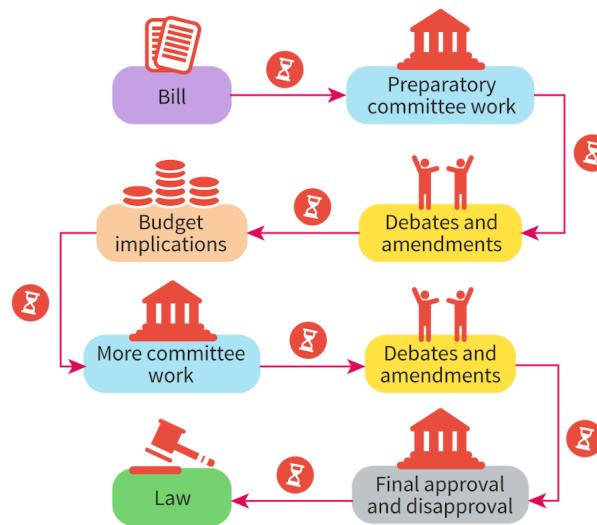


Figure 1. These are all the stages required to pass legislation. There may be a time lag between deciding upon a supply-side policy, and getting it signed into law.

[More information for figure 1](#)

The image is a flowchart illustrating the stages required to pass legislation. It starts with a 'Bill' represented by a document icon. The process moves to 'Preparatory committee work', symbolized by a building icon, indicating the legislative body. Arrows show the progression to 'Debates and amendments', represented by people icons engaging in debate. This phase leads to assessing 'Budget implications', shown with a coin stack icon, before possibly heading to 'More committee work' for further review. Another stage of 'Debates and amendments' follows, and the process culminates in 'Final approval and disapproval', indicated by a gavel icon for law enactment. Throughout the flow, hourglass icons signal potential time lags between steps.

[Generated by AI]

Once a policy is put into law, there are further time lags before the benefits are felt. For example, it can take weeks or even months to see improvements in the unemployment rate after abolishing minimum wages.



Vested interests

Student view

Some supply-side policies are influenced by vested interests. This means that a firm or industry may lobby the government to pass legislation that directly benefits them. For example, mining companies in Australia lobbied the Australian government to remove both the gold mining tax and the coal tax. The industry spent more than AUD 20 million to lobby the government to pass supply-side legislation to benefit themselves.

Environmental impacts

Market-based supply-side policy frees firms from unnecessary regulation. However, removing environmental protections can have damaging consequences. In September 2019, the USA repealed regulations which were designed to decrease the levels of pollution in rivers, lakes and wetlands. The repeal allowed firms to dump chemicals into waterways without a permit. There is already a significant increase in the amount of pesticides and fertilisers in waterways that are downstream from agricultural areas.

🔗 Making connections

In [subtopic 2.8 \(/study/app/.../book/the-big-picture-id-29875/\)](#) of the course you investigated market failure. Based on your knowledge of negative externalities in production, what are the additional costs to the economy associated with water pollution?



Figure 2. Removing environmental regulations may lead to an increase in pollution.

Credit: Getty Images Drbouz

Constraints on interventionist supply-side policies

Supply-side policies can also be interventionist. This is where the government intervenes in the market to help increase competition and efficiency and thereby increase the supply side of the economy. The constraints of interventionist supply-side policies include:

Costs

Interventionist policies can be expensive for the government budget, with many countries choosing to provide public education, health care and other services for free to citizens. This can put pressure on government finances, especially when populations get older or education systems need altering to keep up with changing labour markets.

Time lags

As with market-based supply-side policies, interventionist supply-side policies are also subject to time lags. Any government policies that require legislation take time.

Strengths of market-based supply-side policies

Market-based supply-side policies can be effective because they lead to improved resource allocation and impose no burden on the government budget.

Improved resource allocation

Removing regulations allows market forces to improve resource allocation to create greater efficiencies in the economy. For example, Kenya removed regulations restricting foreign investment to enable a railroad project funded by the state-owned China Road and Bridge Corporation. The railway between Mombasa and the capital of Kenya, Nairobi, has reduced travel time between the cities from 36 hours to 8 hours and reduced transportation costs by 60%. This is an extremely important project that brought huge supply-side benefits to Kenya, which is a growing and still developing country. Allowing private firms to make infrastructure investments has increased the economic capacity of Kenya.



Figure 3. The railway between Mombasa and Nairobi in Kenya.

Source: "New SGR locomotive engine (https://commons.wikimedia.org/wiki/File>New_SGR_locomotive_engine.jpg)" by Erasmus Kamugisha is licensed under CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0/deed.en>)

No burden on government budget

Market-based supply-side policies such as reducing unemployment benefits will actually improve the government budget. Privatisation involves the transfer of ownership of an electricity plant or an expressway from the public sector to the private sector. When the asset is sold, the government will receive a one-off windfall payment. Many market-based supply-side policies are very cost effective. Reducing the power of trade unions, abolishing the minimum wage, deregulation and anti-monopoly regulation only require changes in legislation and are very inexpensive.

Strengths of interventionist supply-side policies

Interventionist supply-side policies can be advantageous because they can provide direct support to sectors that are important for growth.

Interventionist supply-side policies allow the government to identify strategic industries and support them to grow. For example, Japan, Germany and Korea have all supported their steel industries. As steel is a very important input to production for a large range of goods from cars to bridges, there is a strategic advantage for a country to be able to produce steel.



⊕ International Mindedness

The governments of Japan, Germany, and Korea have all been accused of subsidising their steel industry. Surely all governments subsidising their steel industries is the same as no governments subsidising their steel industries? Therefore, would all governments benefit if they agree to reduce their costs by removing their subsidies on steel? If so, why don't governments make such an agreement?

Strengths and limitations in promoting growth, low unemployment and a low stable rate of inflation

New classical economists firmly believe that the key to unlocking economic growth is to focus on the supply side of the economy. As potential output and productivity grow, countries can **increase real GDP** from Y_1 to Y_2 while using fewer resources to do so, and will increase output in the process. More output requires more workers, so supply-side policies will reduce **unemployment**. Supply-side policies encourage competition, which will encourage firms to innovate, cut costs and drive down prices from P_1 to P_2 . Supply-side policies will help to maintain a low and stable inflation rate.

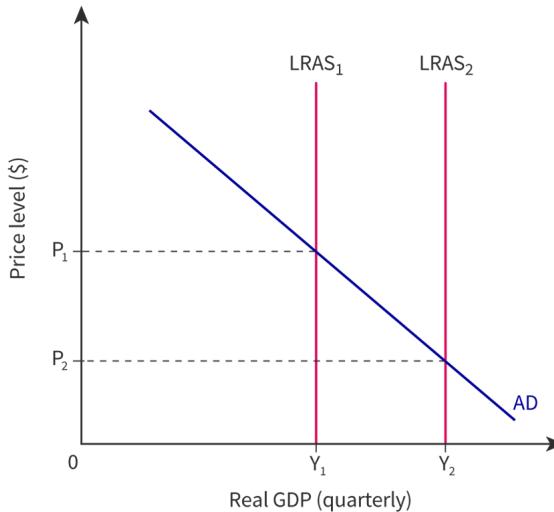


Figure 4. A permanent increase in productivity in the labour market will increase the LRAS.

More information for figure 4

The graph illustrates the relationship between price level and real GDP, indicating a shift in the Long-Run Aggregate Supply (LRAS). The X-axis represents Real GDP (quarterly), and the Y-axis represents the price level in dollars. Initially, the LRAS is at LRAS₁ at GDP Y₁. A new curve, labeled LRAS₂, is positioned to the right, indicating an increase in potential output to GDP Y₂. The Aggregate Demand (AD) curve slopes downward from left to right, intersecting the LRAS lines. The graph shows a decrease in price from P₁ to P₂ as the real GDP increases. This reflects the economic concept that with increased productivity, real GDP growth occurs at a decreased price level, demonstrating how a permanent increase in productivity affects the market supply curve.

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✓ Important

A summary of the strengths and constraints of supply-side policies.

Student view

	Strengths of supply-side policies	Constraints of supply-side policies
Market-based supply-side policies	Improved resource allocation No burden on the government budget	Equity issues Time lags Vested interests Environmental impacts
Interventionist supply-side policies	Direct support of sectors that are important for growth	Costs Time lags

Complete section with 3 questions



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Start questions

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