

# Economics AP

## Unit 4: Keynes, the Multiplier, and Fiscal Policy

Covers Ch 11-13

### Classical and Keynesian Macro Analysis

**The Classic Model** - the old economic theory formulated by Say, Ricardo, Mill, Malthus, and others in the late 18<sup>th</sup> century. The theory assumed that wages and prices are flexible and that a laissez-faire market existed throughout the economy.

**Say's Law** - An economic theory which states that supply creates its own demand. A recession does not occur because of a lack of demand or money. The more of one good that is produced will stimulate demand for other goods therefore saying economy will prosper from increased production, not consumption.

Assumptions of the Classical Model	
Assumptions	Description
Pure competition exists	No one buyer or seller's input can affect the price of a product.
Wages and prices ARE flexible	Prices, wages, and interests rates are free to move according to changes in supply and demand in the long run.
People are motivated by self interest	Business wants to maximize their profits and consumers wants to their economic welfare.
People can't be fooled by money illusion	Buyers and sellers will react to changes in relative prices as long as they don't suffer from money illusion.

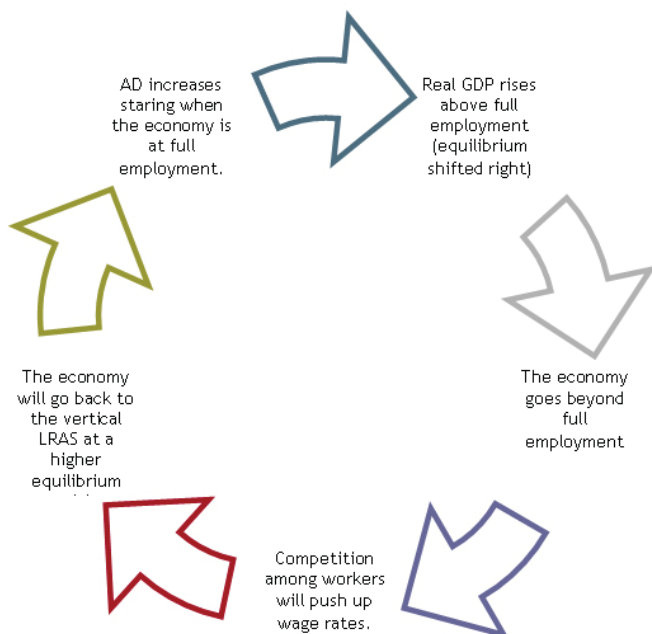
Equilibrium in Markets	
Markets	Description
Credit Market	If income is saved, it will have no effects on the demand. Instead, the classical theory states that the saved income will be invested. The credit market states that interest rates will adjust with its supply/demand (where as saving is supply of credit and investment is demand of credits).
Labor Market	The classical model states that there is only voluntary unemployment. So if wages are high and supply an excess amount of workers, by lowering the wage, the unemployed excess workers will still go back to work. (The level of employment determines its real GDP)

### The Classic Theory of LRAS and Price Level

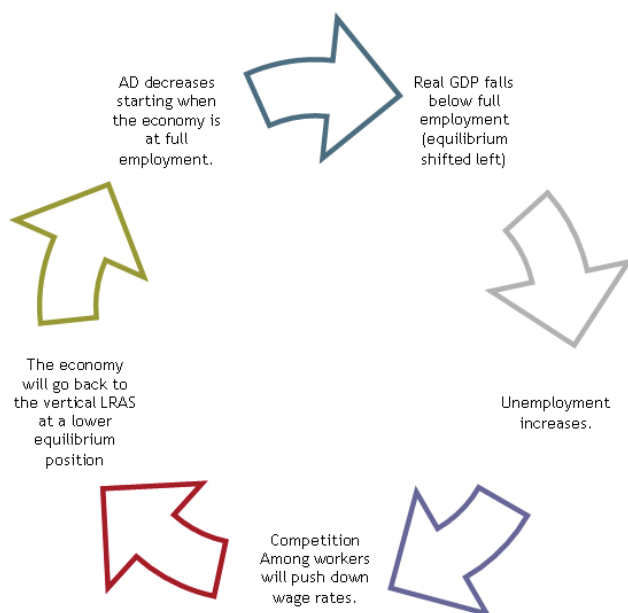
- Due to the nature of the Classic Model (Say's Law and flexible price, wages, and interest rates), the LRAS is likely to be a vertical line and at full employment

## Effects of Changing AD in Classical Model

### The Effect of an Increase in AD in Classic Model



### The Effect of a Decrease in AD in Classic Model

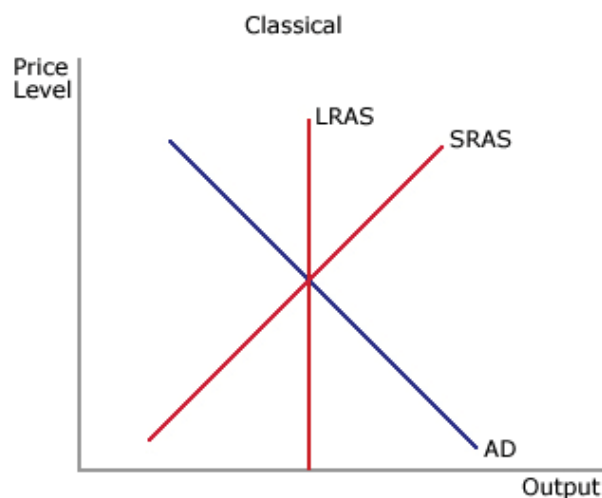
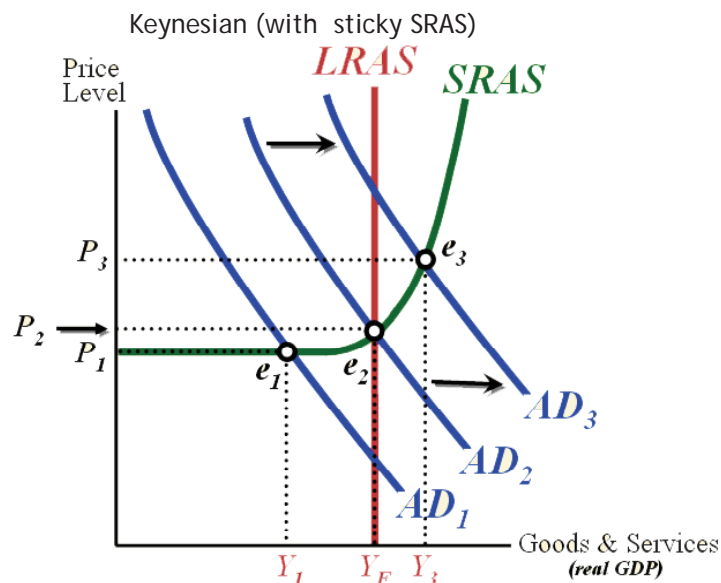


## Keynesian Model

### Keynesian Economics and the Keynesian SRAS

- The Keynesian Economic Model asserted the importance of aggregate demand for goods as the driving factor of the economy, especially in periods of recessions.

**Keynesian SRAS** - Many prices in the economy such as wages are "sticky". The "stickiness" creates involuntary unemployment in labor. (The horizontal part of the SRAS is where there is unemployment and unused capacity in economy).



## Keynesian Model (Cont.)

### Income Determination Using AD and AS: Fixed VS Changing Price Levels in Short Run

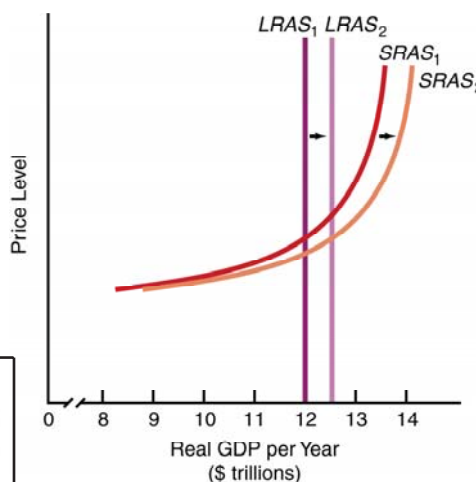
- Since the SRAS is horizontal, The Real GDP is completely determined by the AD. When the SRAS slopes upward and the AD increases, the real GDP will increase by less because the increase in AD causes a slower increase in nominal GDP as a result of increasing price levels as well.

#### Reasons for sloping SRAS

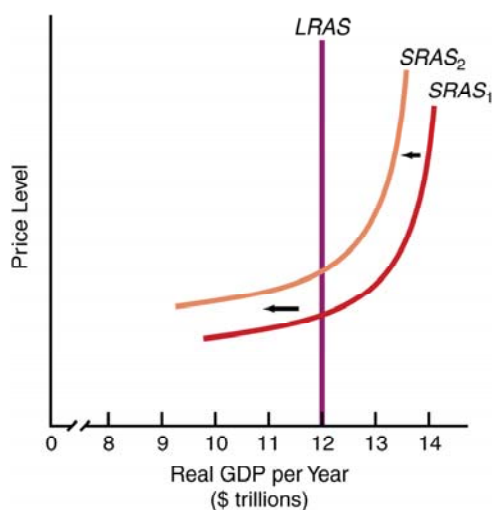
- Flexibility of hours and work.
- Existing capital can be used more intensively.
- Profits rise if prices go up by wages rates do not.

#### Shifts in both SRAS and LRAS

- Any changes in factors of production.
- Any changes in technology



#### Shifts in SRAS only



- Temporary changes in input price

### Determinants of Aggregate Supply

#### Increase

- Discoveries of new raw materials
- Increased competition
- A reduction in international trade barriers
- Fewer regulatory impediments to business
- An increase in labor supplied
- Increased training and education
- A decrease in marginal tax rates
- A reduction in input prices

#### Decrease

- Depletion of raw materials
- Decreased competition
- An increase in international trade barriers
- More regulatory impediments to business
- A decrease in labor supplied
- Decreased training and education
- An increase in marginal tax rates
- An increase in input prices

### Consequences of Changes in AD

Case	Description
Aggregate Demand Shock	Any shock that causes the aggregate demand curve to shift inward or outward.
Aggregate Supply Shock	Any shock that causes the aggregate supply curve to shift inward or outward.

AD shifts while SRAS is stable

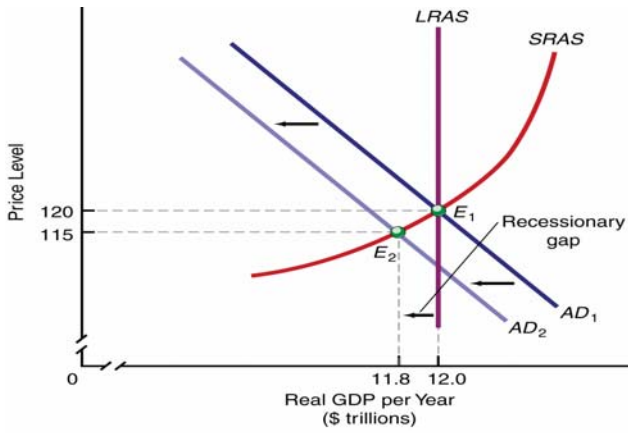
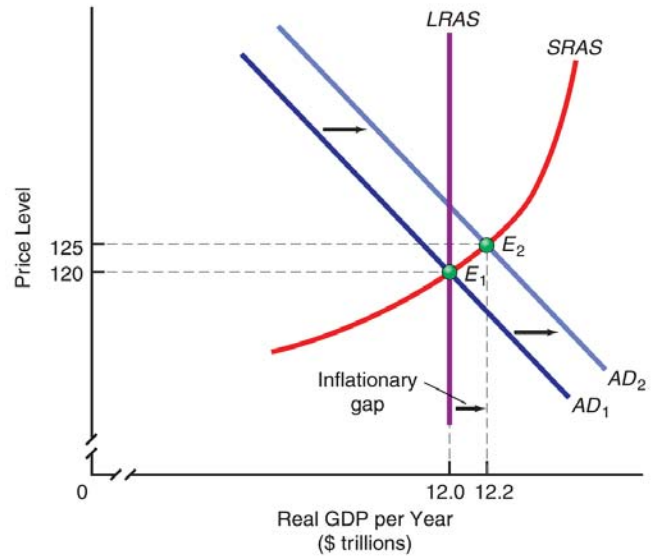


Figure 11-12

A decrease in AD will decrease both the price level and real GDP. If the real GDP is less than the LRAS, the difference between the two is called the recessionary gap.



An increase in AD will increase both the price level and real GDP. If the real GDP is more than the LRAS, the difference between the two is called the inflationary gap (or expansionary gap).

**Demand-pull inflation**

Inflation due to the increase in aggregate demand not met with an increase in aggregate supply, thus shifting off equilibrium.

**Cost-push inflation**

Inflation caused by a decreasing SRAS curve. (i.e. The constantly increasing gasoline price)

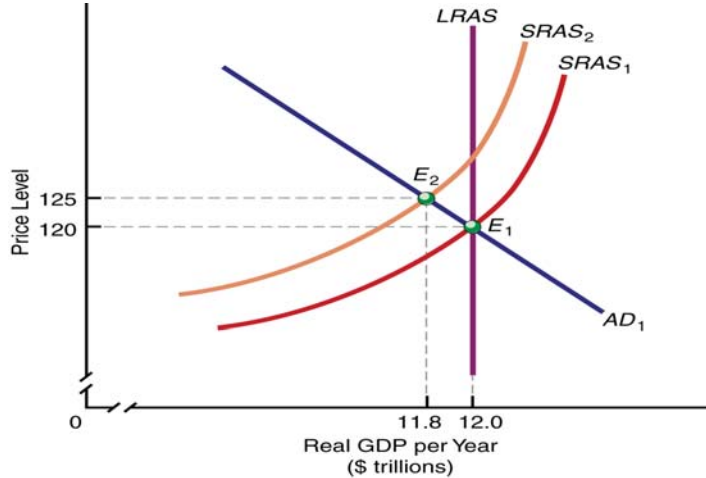
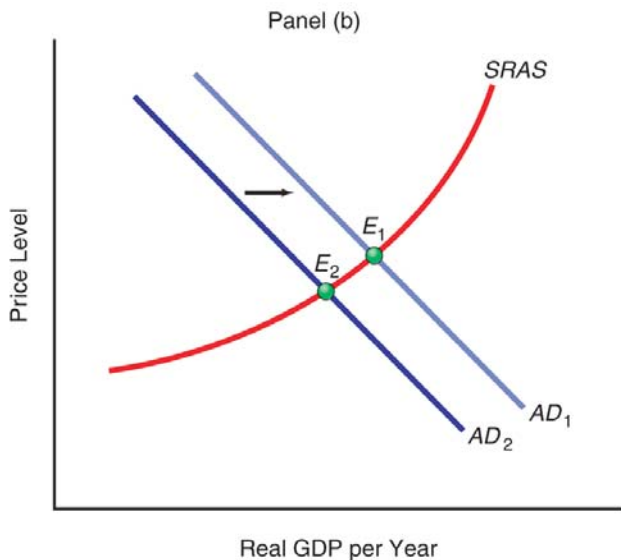


Figure 11-15

How a stronger dollar affects aggregate demand? - Reduces price of imports and increase the prices of exports. The country's imports will increase and exports will decrease shifting the AD left



The Net Effect

- If SRAS shifts more than AD, price levels will fall
- If AD shifts more than SRAS, price levels will rise

Comparison between Keynesian and Classical	
Keynesian	Classical
<ul style="list-style-type: none"> <li>- Rigid prices</li> <li>- Short-run view</li> <li>- <i>AD</i> determines output</li> </ul>	<ul style="list-style-type: none"> <li>- Flexible prices</li> <li>- Long-run view</li> <li>- <i>LRAS</i> determines output</li> </ul>

## Consumption and Saving

Consumption	<i>Spending on new goods and services using household income. I.E. Buying food, going to concert.</i>	
	Consumption goods	The goods being consumed. I.E. the food and concert.
Savings	The act of not consuming. Anything that is not consumed is saved.  Consumption + Savings = Total disposable income	
Investment	The spending of a business to produce more of or better their product.	
Capital Goods	<i>Producer Durables.</i> Non-consumable goods used by companies to make other goods.	

## The Consumption Function

**The Consumption Function** - The relationship between Consumption and Disposable Income. A consumption function shows people's planning of consumption at their current income.

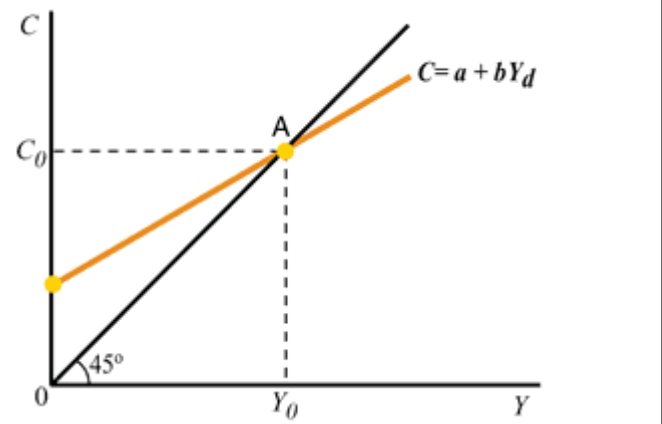
Dissavings	According to the consumption function graph, dissaving occurs when the current income falls below the consumption line. It is when people are forced to borrow or use up existing wealth.
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## Simplifying the Assumptions of Keynesian

Keynesian model needs a few assumptions. These are the simplified assumptions.

Businesses pay no indirect taxes.
Businesses distribute profits to share holders
No depreciation (Gross domestic investment = net investment)
Closed Economy (No world trade)

## The Consumption Function (Cont)



**Diagram 12A:** The orange (light gray) line represents the consumption line. The black line (45-degree reference line) represents the different income levels. Notice that before point A, the black line falls below the orange line. That section between the two lines before point A represents the **dissavings**. Point A is sometimes called the **breaking point**.

45-Degree Reference Line	The black line represents income at a given expenditure rate.
Autonomous Consumption	This part of consumption has no relation to the income level. Notice on the graph that consumption starts above zero. That would be the autonomous consumption that people need for survival.
Personal income (PI)	Income households get before they pay personal income taxes.  <i>Personal income = National income + transfer payments - income earned but not received</i>

## Average Propensity

Average propensity to consume (APC)	Consumption divided by disposable income. $APC = \text{consumption} / \text{real disposable income}$
Average propensity to save (APS)	Savings divided by disposable income. $APS = \text{savings} / \text{real disposable income}$

APC and APS gives the percentages of how much a person/family/society/economy would save at a given income.

**Relation**  
Since not consumed is saved,  
 $APC + APS = 1$

## Marginal Propensity

Marginal Propensity to Consume (MPC)	It is the ratio of change in consumption to the change in disposable income.  MPC = Change in Consumption / Change in disposable income
Marginal Propensity to Save (MPS)	It is the ratio of the change in savings to the change in disposable income.  MPS = Change in Savings / Change in disposable income
MPC and MPS are used to determine the change in consumption and savings. Likewise MPS + MPC = 1	

**Wealth** - A measure of all assets owned by a person, family, firm, or nation.

**Lump-sum tax** - This tax does not depend on the income or circumstances of the payer.

## The Multiplier

**Multiplier** - The ratio of the change in equilibrium level of income to the change in autonomous expenditures. This multiplier is used to find the change needed to restore back to equilibrium.

Simple Multiplier	Multiplier = $1 / (1 - MPC) = 1 / MPS$
Tax Multiplier	$-MPC / MPS$

The multiplier is used to determine how much money is required to inject into the economy (usually by the government) to return National Income to equilibrium.

### Example (Simple Algebra)

For example, if the simple multiplier is 4 and the NI is 12 million under equilibrium.

Multiplier \* Injected Money (G) = NI Deficit

$$4 * G = 12 \text{ million}$$

$$G = 3 \text{ million}$$

Therefore, 3 million dollars need to be injected into the economy to bring the National Income (NI) back to equilibrium according to this multiplier.

## Fiscal policy

**Fiscal policy** - Government's choices regarding overall level of government purchases or taxes. Key to Keynesian economic theory.  
Government purchases directly shift the aggregate demand curve, whereas changes to tax rates and money supply affect aggregate demand indirectly.

### Contractionary vs. Expansionary fiscal policy

**Contractionary fiscal policy** is used when there is an inflationary gap; the government takes in more money and aggregate demand shifts left. Taxes go up and/or government spending goes down. Both price and real GDP decrease.

**Expansionary fiscal policy** is used when there is a recessionary gap (during a recession); the government puts more money in circulation and aggregate demand shifts right. Taxes are cut and/or government spending goes up. Both price and real GDP increase.

### Long Run Aggregate Supply (LRAS) Fiscal Policy

An increase in aggregate demand will establish a temporary equilibrium at higher price and real GDP. However, in the long run equilibrium will return to a point on LRAS at original GDP but at a higher price level than before. (Expansionary)

A decrease in aggregate demand will establish a temporary equilibrium left of LRAS (more than 5% unemployment) at a lower price level and real GDP. However, in the long run equilibrium will return to a point on LRAS at original GDP but at a lower price level than before. (Contractionary)

Higher taxes reduce aggregate demand because it

- 1) reduces consumption
- 2) reduces investment
- 3) reduces net exports

When the current short-run equilibrium is greater than LRAS (less than 5% unemployment), increasing taxes shifts aggregate demand left to intersect with LRAS at a lower price level. Real GDP and price level fall.

**Crowding-out effect** - Reduction in demand that results when fiscal expansion raises interest rates

## Crowding Out Effect

Comprised of four parts.

Higher interest rates discourage consumption and investment.

Government spending "crowds out" private spending.

Aggregate demand, while still higher than initial aggregate demand, actually shifts left and leaves the desired equilibrium.

Thus, government spending intended to increase aggregate demand actually isn't completely effective since the crowding-out effect causes a decrease in aggregate demand and dampens the positive effect of expansionary policy.

Refer to Chart for some clarifications

## Components of GDP / GDI

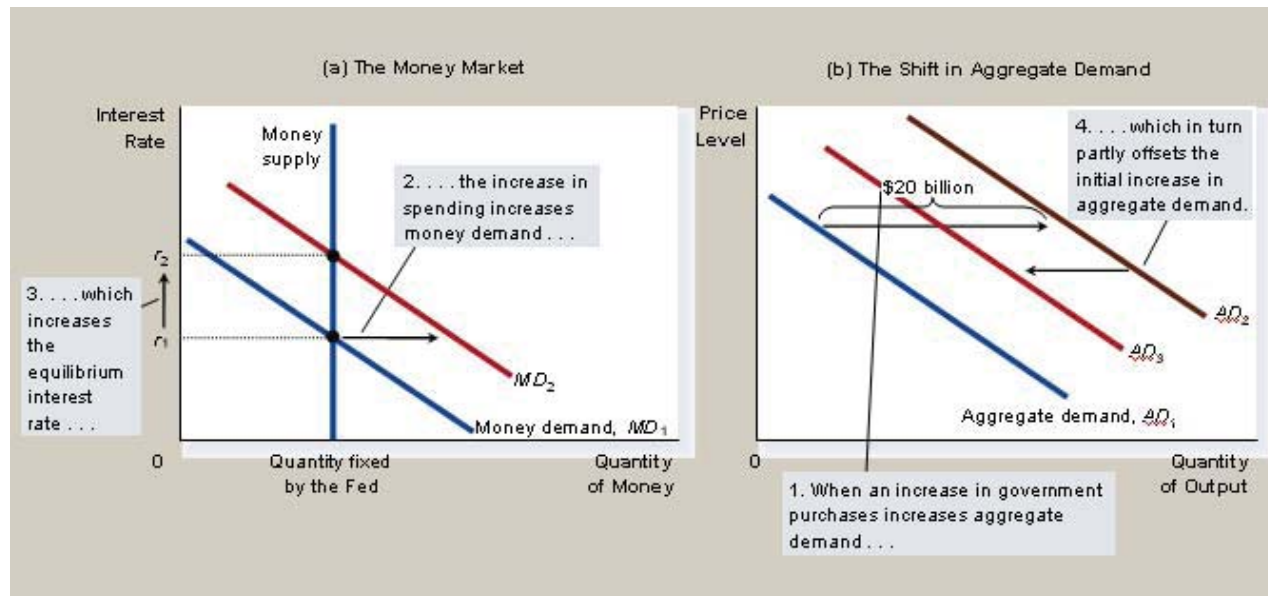


Fig 1. The crowding-out effect. Government expansionary policy does increase aggregate demand, but the crowding-out effect offsets the amount of increase.

## New Classical Economics

**Ricardian equivalence theorem** - An increase in the government budget deficit (a.k.a. tax cuts, deficit spending, etc.) has no effect on aggregate demand. This assumes people consider future government actions beyond this year.

**Direct expenditure offsets** - Actions on the part of private sector in spending money that offset government fiscal policy actions. Increasing government spending in a field that competes with private sector will have some offset effect (direct crowding-out).

Extreme Case	Where direct expenditure offset is dollar for dollar; no change in total spending since government spending increases by the same amount that it crowds out of consumption. Aggregate demand and GDP remain the same.
Less Extreme Case	Real output and price level will be affected, and predicted changes in aggregate demand will be lessened.

## Fiscal Policies (Cont.)

Supply side economics	Creating incentives for individuals and firms to increase productivity will cause the aggregate supply curve to shift outward. If reductions in marginal tax rates induce enough additional work, saving, and investing, government tax receipts can actually increase.
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Fiscal policy takes a long time to plan and implement because of various lags. By the time the policy does impact the economy, it may be irrelevant or even harmful.

### Time Lags

Recognition time lag	Time required to gather information about the current state of the economy.
Action time lag	Time required between recognizing an economic problem and putting policy into effect. Short for monetary policy but long for fiscal policy. (Ex: approval by Congress)
Effect time lag	Time that elapses between the onset of policy and the results of policy.

**Automatic (built-in) stabilizers** = Special provisions of the tax law that cause changes in economy without action of Congress and the president. (Ex: progressive income taxes, unemployment compensation)

Tax systems	In a recession, tax collections fall faster than disposable income. In an expansion, tax collections rise faster than disposable income.
Unemployment compensation	In a recession, unemployment compensation and welfare payments rise. In an expansion, unemployment compensation and welfare payments fall.

Discretionary (deliberate) fiscal policy such as tax cuts and increased government spending help more in abnormal times (wartime, severe depressions, etc.) than in small recessions.

However, fiscal policy may have a "soothing effect" that reassures consumers and investors and induces stable expectations, since they know fiscal policy can prevent severe depressions.