

## National Income 2

In the previous handout, we looked at the definition of National Income (Y) and the different ways that it could be measured. We looked at the different names for the different measurements for National Income (Y) and all the adjustments that need to be made in order to calculate the different forms of National Income (Y). We looked at Real GDP, Nominal GDP and said that economists only ever look at changes in Real GDP as actual changes in the standard of living for the residents of a country. In short, the previous handout was concerned with measuring National Income (Y).

But if economists are to be any good at their job, they need to be able to tell us what affects the size of National Income (Y). After all, National Income (Y) tries to measure the standard of living enjoyed by the residents of a country. If we can find out what causes National Income (Y) to increase, then economists can accurately advise the government on how best to increase the the standard of living of the residents of their country.

It was the great economist John Maynard Keynes (1883 - 1946) who proposed the idea that any economy is demand driven. Essentially, his idea is as follows. It is the quantity of goods and services produced that defines the wealth of a Nation. Therefore we need to get firms to produce more in order to be richer as a country. Firms are profit maximisers. The only reason a firm will produce more is if they reckon they can sell what they produce for a profit. The only reason that firms can sell more is if consumers want to buy more. Therefore, the more consumers want to buy, the more firms will produce and the higher the standard of living for all. Essentially, the more consumers want to buy, the more firms will produce and the richer the country will be.

Therefore, according to Keynes, the best way to get a country out of a recession (a fall in the standard of living brought about by a reduction in production) is to increase the expenditure of the entire population. **“Get em spending”** was the instruction from Dr Keynes. This concept brings us to our fourth rule of Macroeconomics.

### Macroeconomics Rule 4

The only reason firms produce goods and services is because they believe they can make a profit by selling them. If you wish to increase National Income, you have to increase the amount that people wish to buy. You have to increase demand. In short the economy is “demand driven”

This idea was revolutionary. Before Keynes, governments thought that during times of recession they should cut back their spending as they had less money with which to spend. Keynes said they should do the opposite. Keynes argued that the government should increase spending during times of recession. This increase in spending is an increase in demand. When there is an increase in demand, firms hire more workers to produce goods to meet this extra demand. The firms pay these newly hired workers wages, and these newly hired workers spend these wages in other shops which cause those new shops to hire more workers, pay them wages and these newly hired workers spend their wages in other shops which causes the whole process to begin again.

The whole process can be summarised as follows. To increase national income (to increase production and hence the standard of living) you have to

- 1) **Increase Expenditure:** This increased spending could be done by the government through building roads, building highways, hiring more teachers, doctors, nurses or any number of other ways the government can spend money.
- 2) **Increase Income:** With the government spending money on the output that firms produce, firms are now in a position where they have to hire new workers in order to meet the increased demand for their output. Now not only does the firm (and it's owners) have more money, but with the new workers they have hired, more people have a higher income.
- 3) **Increase Output:** Now with the government, firms and workers having more income, they spend this money on the output of firms which causes these firms to increase output which raises Real GDP and results in a higher average standard of living for the residents of a country.

We know from the previous handout that National Income equals National Output equals National Expenditure. Therefore, if you raise one of them, you raise them all.

The one that is easiest to increase is National Expenditure particularly from the government (governments have always been very good at spending other people's money). So, according to Keynes, all that has to be done to get an economy out of a recession is for the government to spend their way out.

### Aggregate Demand

Looking all the way back to our demand notes, we saw the definition for effective demand.

**Effective Demand:** refers to the desire for goods and services supported by the necessary purchasing power.

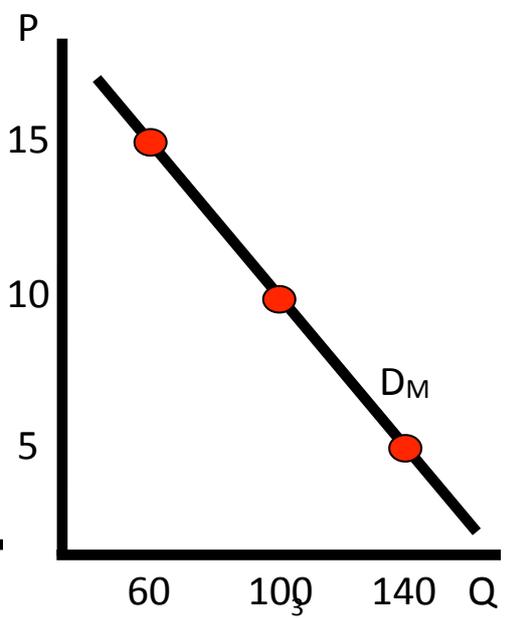
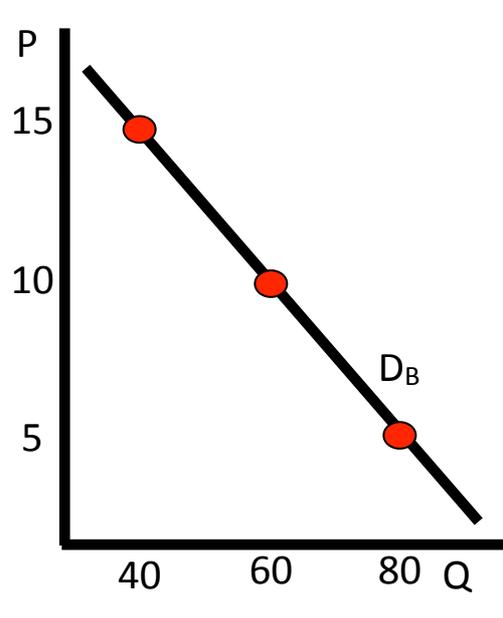
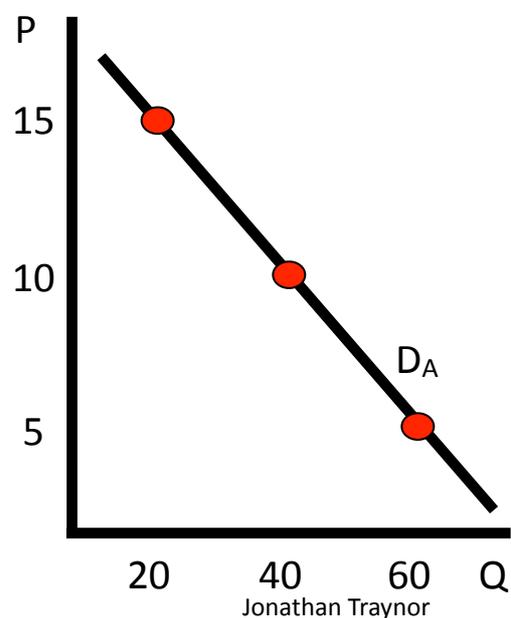
This definition reminded us of something that we probably already knew. In order to buy something we must have income enough to afford it. The same thing is true of an economy, in order for the entire economy to be able to attain a certain standard of living, we must be able to afford it. The difference here is that “afford” in the macroeconomic sense means that we must be able to produce it given our scarce factors of production.

In macroeconomics, our income is our ability to produce goods and services, which is defined by the quantity and quality of our factors of production. Again looking back at the demand notes, we have previously seen Market Demand.

**Market Demand:** is the total quantity of a good that all consumers demand at different prices.

Demand Schedule for Ice - Cream Cones			
Price	Consumer A	Consumer B	Market
€5	60	80	140
€10	40	60	100
€15	20	40	60

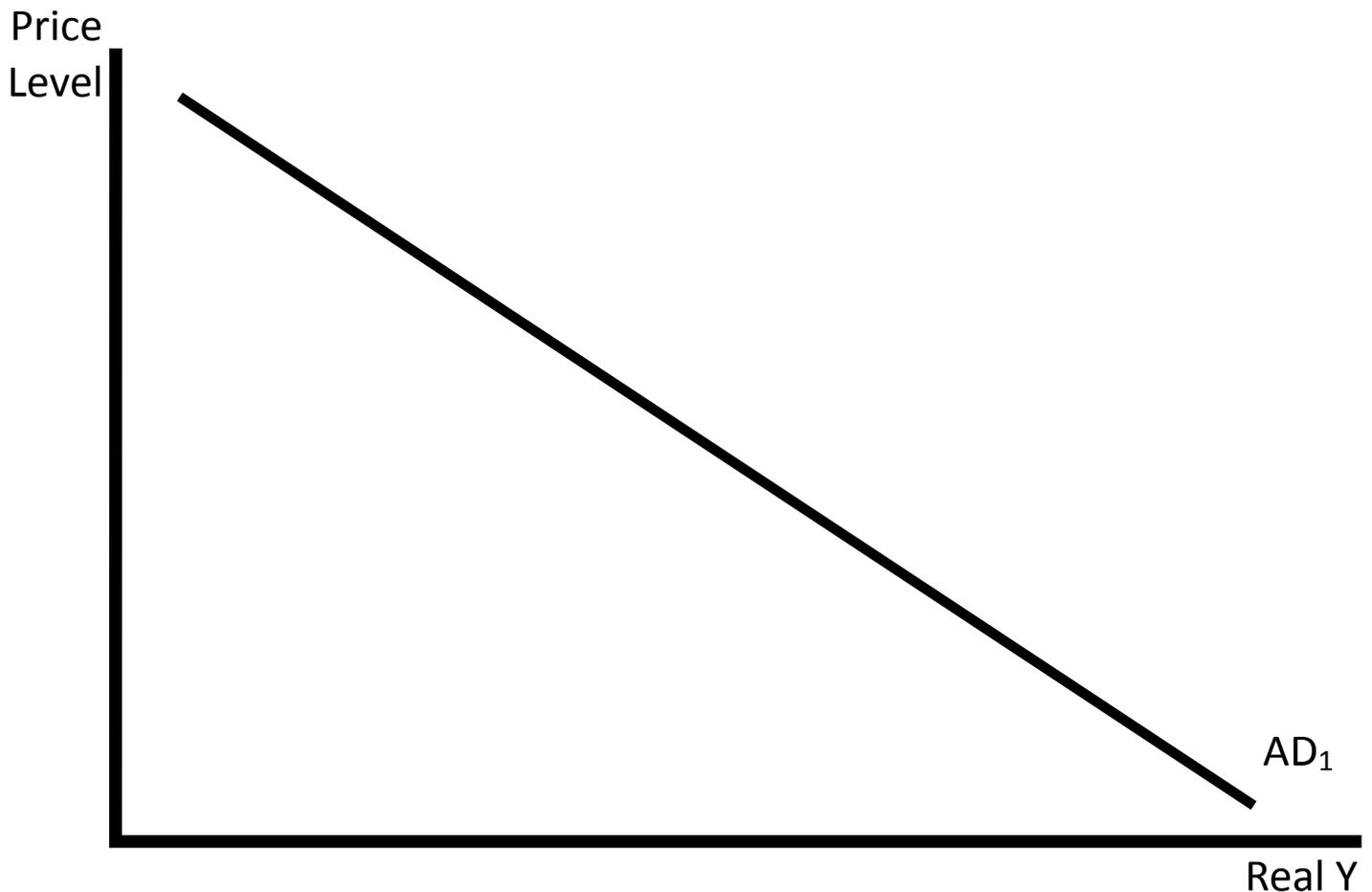
Consumer A's Demand Curve + Consumer B's Demand Curve = Market Demand Curve



Looking at the information given on the previous page we see that we can calculate the total or market demand for a good by adding up the individual consumer demand for that good. So market demand is just the “horizontal addition” of all the individual demand curves for that good.

Now we must ask ourselves, **“What if we added together all demand curves for every good from every consumer in the economy?”**. If we did that we could work out the desire to spend by all consumers in an economy at any given price level. So instead of having an individual demand curve or a market demand curve, we would have one single demand curve for the entire economy. We call this single demand curve the Aggregate Demand Curve. See below.

### The Aggregate Demand Curve

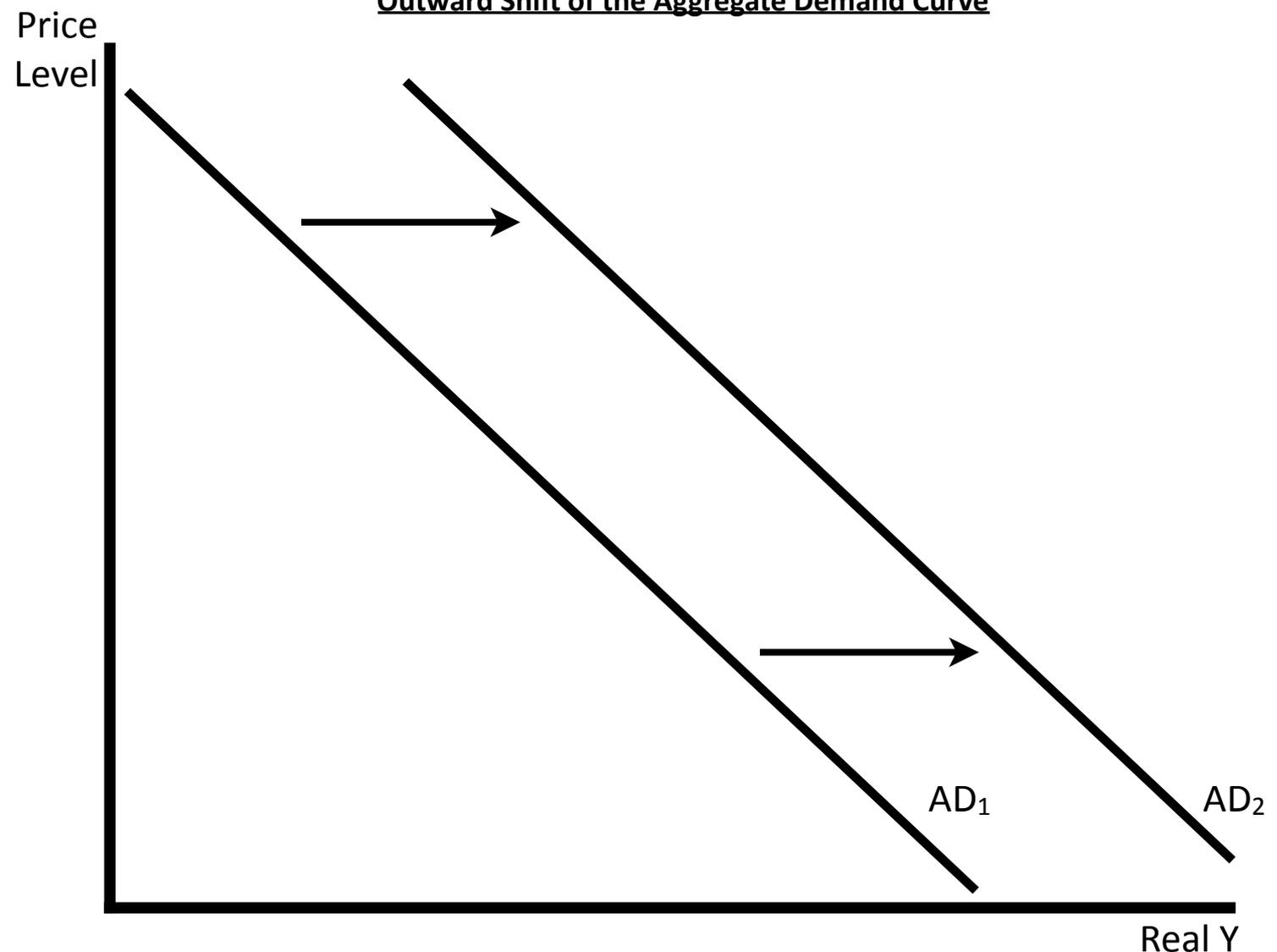


On the vertical axis we have the price level, which just means that if the price level rises there has been inflation (or at least an increase in the rate of inflation) and if the price level falls there has been deflation (or at least a reduction in inflation). On the horizontal axis we have real National Income. The further out to the right on this axis, the more stuff that is produced and the richer the country is. The further in to the left on this axis, the less stuff produced and the poorer the country is. Every country wishes to be as far out to the right on the Real Y axis!!!!!!

### Shifts of the Aggregate Demand Curve

There are many reasons why the Aggregate Demand Curve might shift, and we will discuss them later, however, for now, just realise that when we are talking about the Aggregate Demand Curve, an outward shift means that people are willing and able to spend more money (buy more goods and services) than previously was the case. An outward shift in the Aggregate Demand curve is the usual cause of an economic boom.

#### Outward Shift of the Aggregate Demand Curve



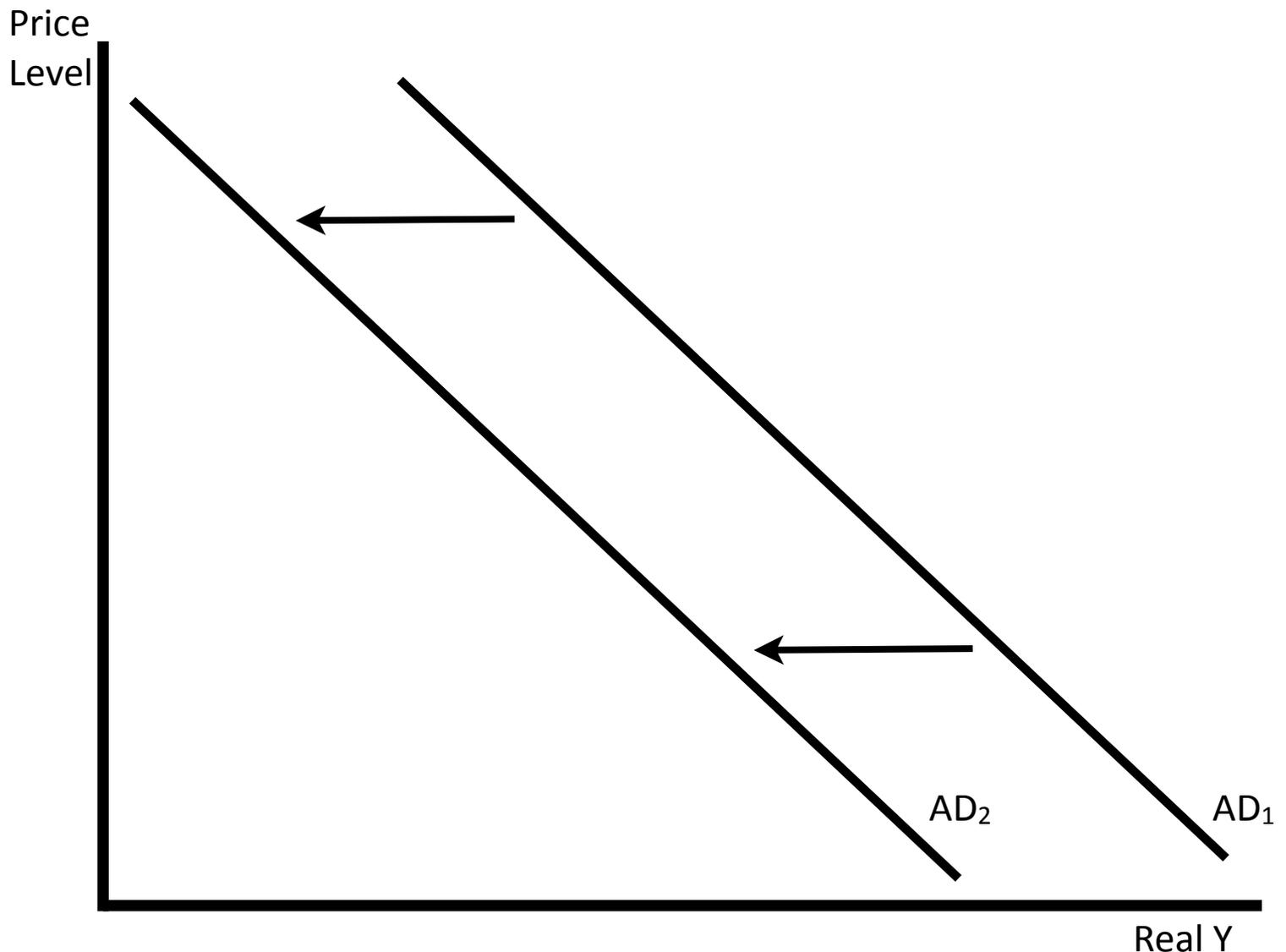
**Aggregate Demand:** the quantity of goods and services that households, firms, the government and the rest of the world, wish to buy at each price level

**Outward Shift of the Aggregate Demand Curve:** means that there has been an increase in the total quantity of goods and services that households, firms, the government and the rest of the world wish to buy at each price level.

### Inward Shift of the Aggregate Demand Curve

Again, there are many reasons why the Aggregate Demand Curve might shift, and; again, we will discuss the reasons why later. However, for now, just realise that when we are talking about the Aggregate Demand Curve, an inward shift means that people are willing and able to spend less money (buy less goods and services) than previously was the case. An inward shift in the Aggregate Demand curve is the usual cause of an economic recession or economic downturn.

### Inward Shift of the Aggregate Demand Curve



**Inward Shift of the Aggregate Demand Curve:** means that there has been a reduction in the total quantity of goods and services that households, firms, the government and the rest of the world wish to buy at each price level.

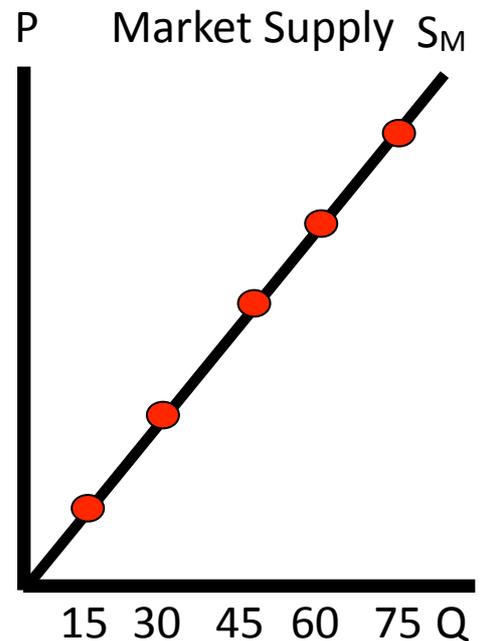
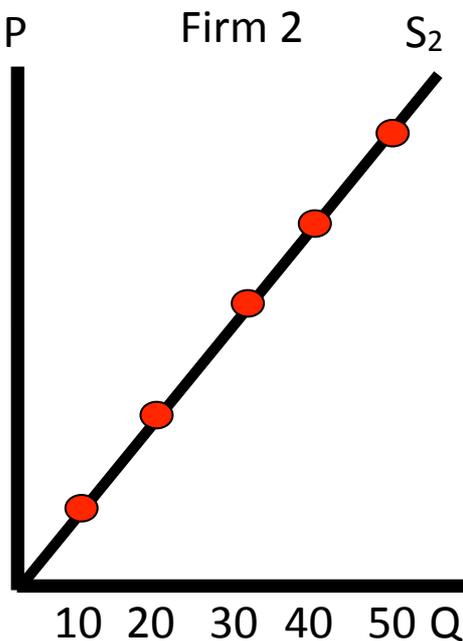
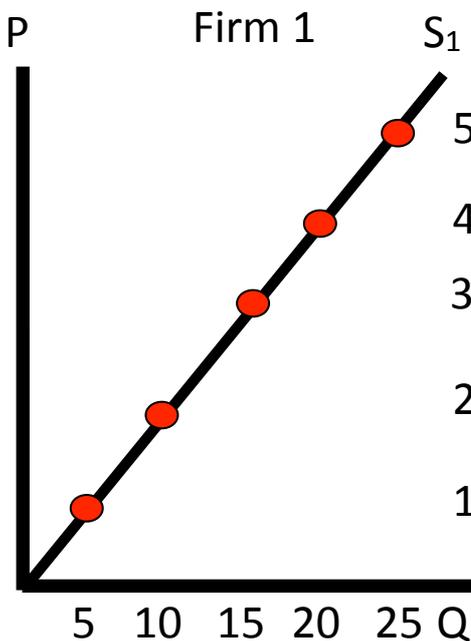
### Aggregate Supply

Looking all the way back to the Supply notes, we see the definition for individual supply and market supply. It is important to remember that in Macroeconomics, our standard of living is determined by our levels of production (supply). The more we make the richer we are. In order for anyone of us to enjoy anything, it has had to be produced in the first place. If you get a lift to school from your parents or friends, someone has had to produce that car in order for you to get a lift into school. If I am to use this laptop to type out these notes, someone working for Apple has had to produce it in the first place, etc.

**Individual Supply:** the quantity of a good an individual firm is willing to supply at different prices

**Market Supply:** the total quantity of a good that all firms are willing to supply at different prices

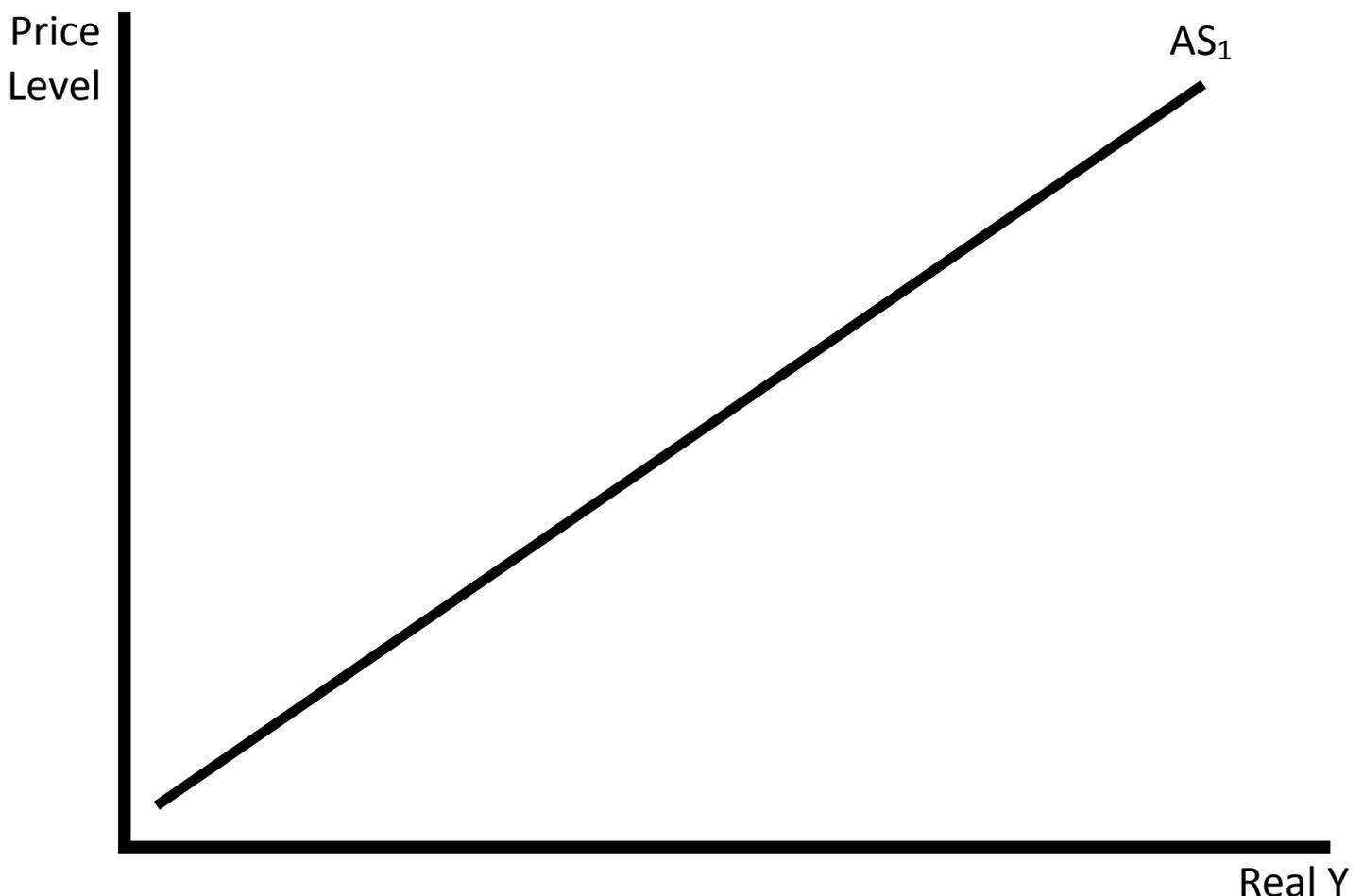
Individual and Market Supply		
Price	Firm 1	Firm 2
€1	5	10
€2	10	20
€3	15	30
€4	20	40
€5	25	50



Looking at the information given on the previous page we see that we can calculate the total or market supply for a good by adding up the individual firms supply for that good. So market supply is just the “horizontal addition” of all the individual supply curves for that good.

Now we must ask ourselves, **“What if we added together all supply curves for every good from every firm in the economy?”**. If we did that we could work out the desire to produce goods and services by all firms in an economy at any given price level. So instead of having an individual supply curve or a market supply curve, we would have one single supply curve for the entire economy. We call this single supply curve the Aggregate Supply Curve. See below.

### The Aggregate Supply Curve



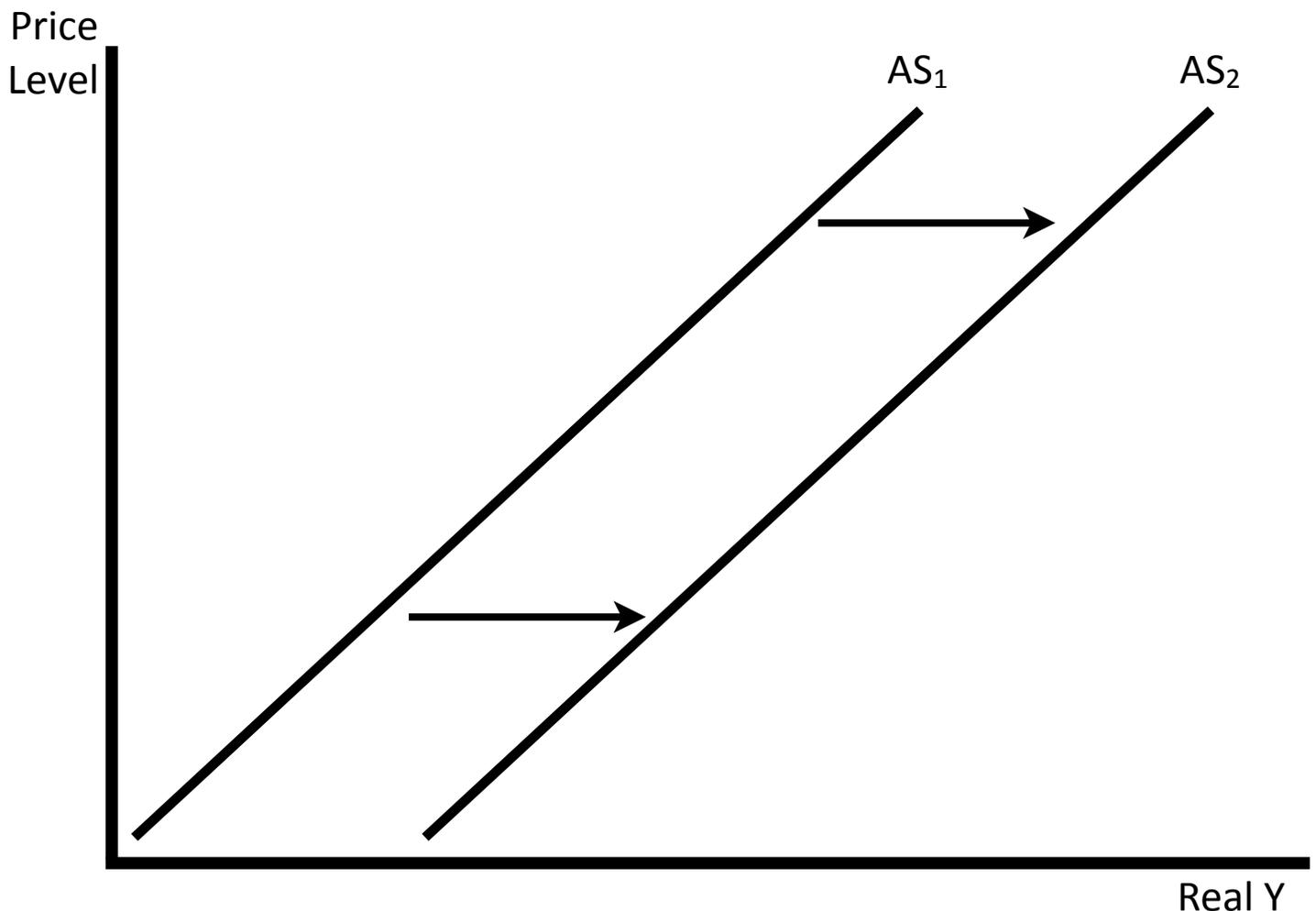
Again, on the vertical axis, we have the Price Level (inflation) and Real National Income on the horizontal axis (output). The upward slope of the Aggregate Supply curve shows that at higher Prices, firms are willing to supply or produce more (that means a higher standard of living). Probably the best way to view the slope of the Aggregate Supply curve is that **“Inflation is the price we pay for more output”**. Essentially, if we

wish to cause greater production (and we always do as it means a higher standard of living) we must cause inflation. Usually this is the case with the Keynesian view of the economy, but there are rare exceptions which we will look at later.

### **Shifts of the Aggregate Supply Curve**

There are many reasons why the Aggregate Supply Curve might shift. The Aggregate Supply curve is not as important in Keynesian economics as the Aggregate Demand Curve. This is because it is very difficult for the government to change Aggregate Supply, it is far easier for the government to cause a change in Aggregate Demand (by spending or taxing more or less). However, for now, just realise that when we are talking about the Aggregate Supply Curve, an outward shift means that firms are willing and able to produce more goods and services than previously was the case. An outward shift in the Aggregate Supply curve is usually caused by a reduction in business taxes, a breakthrough in technology among others.

### **Outward Shift of the Aggregate Supply Curve**



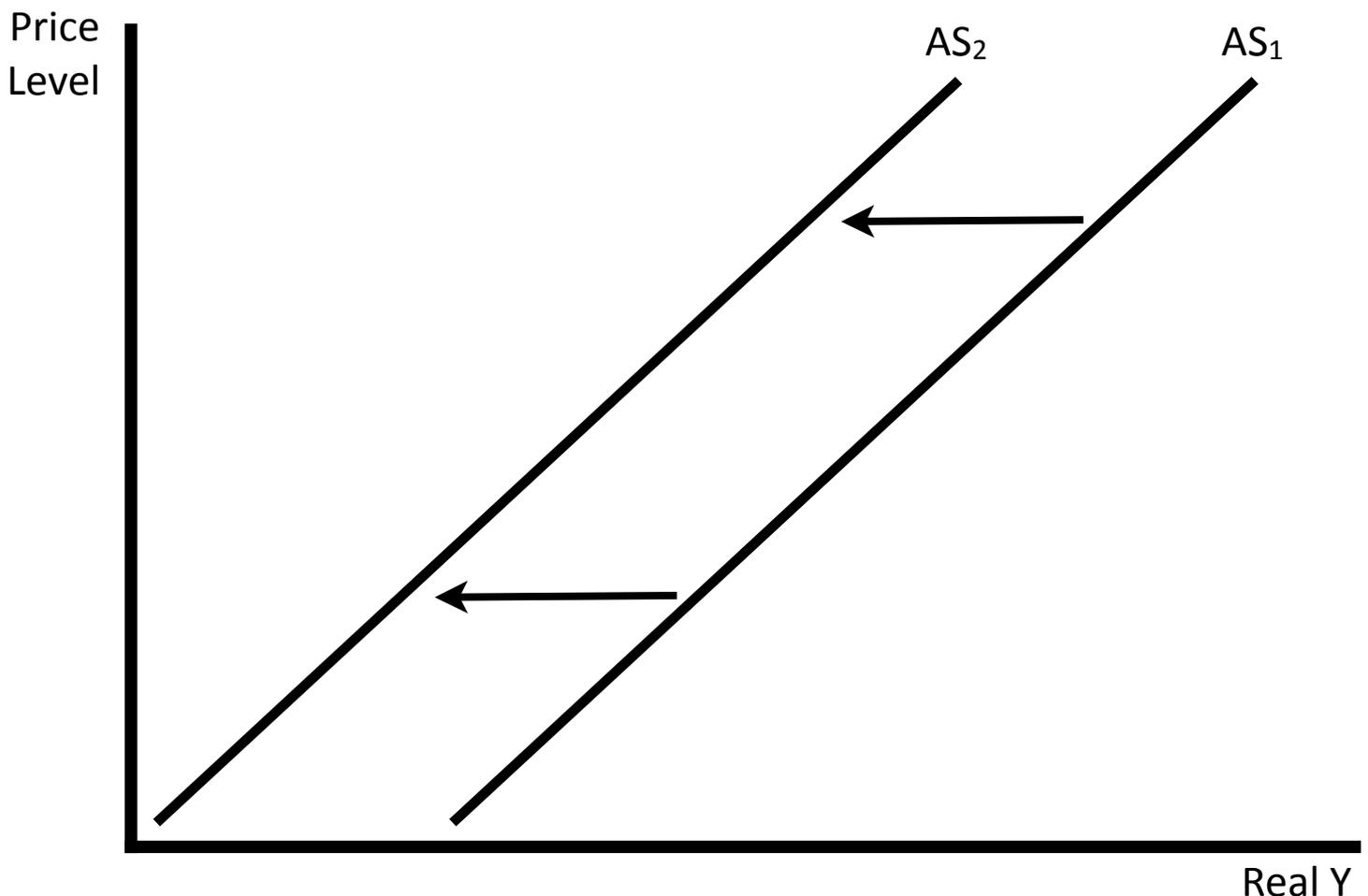
**Aggregate Supply:** the quantity of goods and services that firms are willing and able to produce at each price level

**Outward Shift of the Aggregate Supply Curve:** means that there has been an increase in the total quantity of goods and services that firms are willing and able to produce at each price level

### Inward Shift of the Aggregate Supply Curve

Again, there are many reasons why the Aggregate Supply Curve might shift, things like an increase in business taxes, an increase in regulations or an increase in the price of imported resources could raise the cost of production for businesses, thus reducing the profitability and as such the incentive to produce. Essentially, an inward shift of the Aggregate Supply curve is one of the worst things that can happen to an economy. It means that less goods and services are being produced and as such results in a fall in our material standard of living.

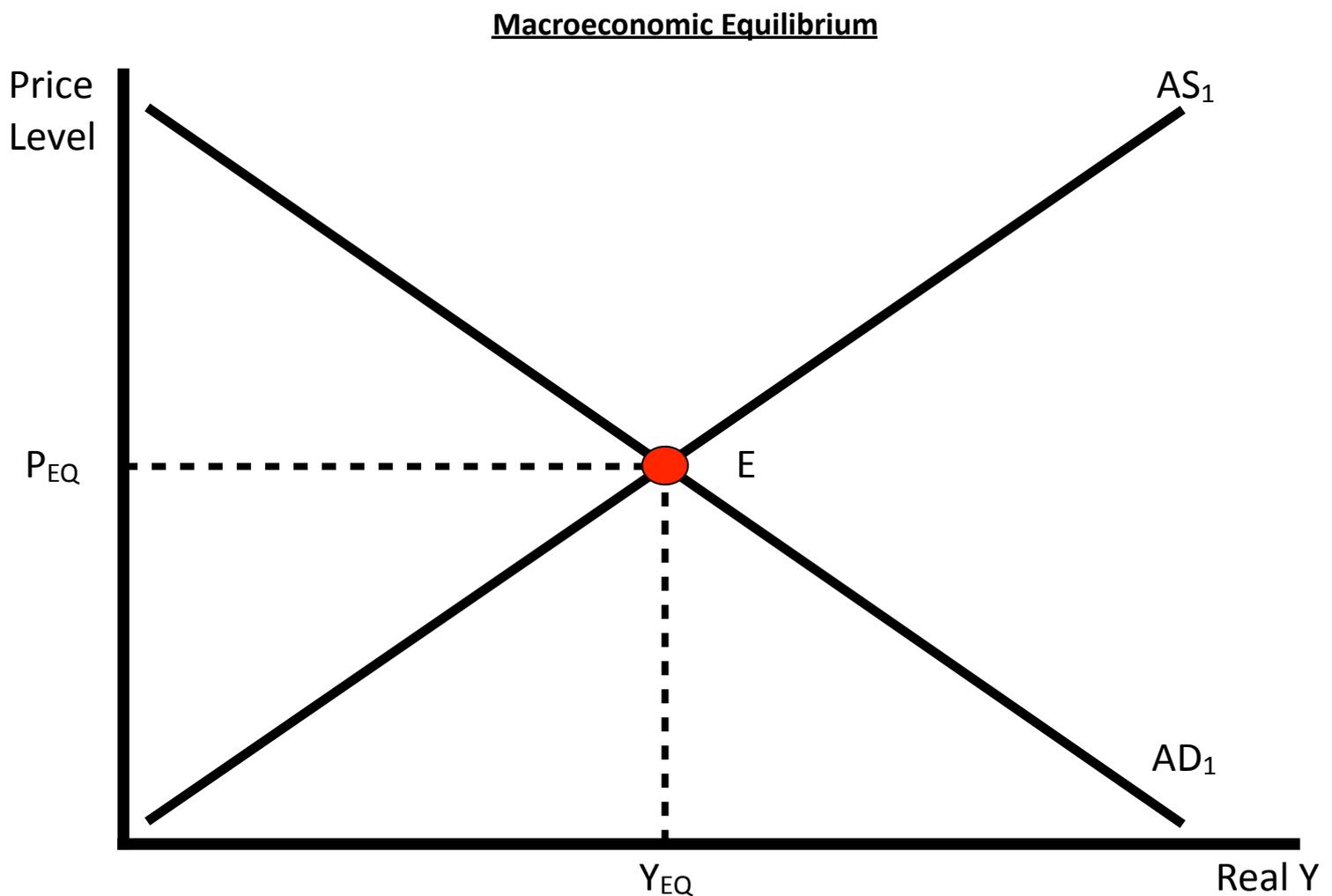
### Inward Shift of the Aggregate Demand Curve



**Inward Shift of the Aggregate Supply Curve:** means that there has been a reduction in the total quantity of goods and services that firms are willing and able to produce at each price level

### Equilibrium in the Macroeconomy

It is a usual thing in economics to discuss the term equilibrium. Like most things in life it is usually a good idea to know what you are talking about. When we are talking about equilibrium in the macroeconomy we mean the amount of goods and services that households, firms and governments wish to buy (Aggregate Demand) is equal to the amount of goods and services that firms wish to produce (Aggregate Supply). In short, equilibrium in the Macroeconomy occurs when  $AD = AS$ . However, as the Keynesians essenSee diagram below.



The diagram above shows the Aggregate Demand curve and the Aggregate Supply curve on the same diagram. The point  $E$  where the Aggregate Demand and Aggregate Supply curves intersect, is the macroeconomic equilibrium. At this equilibrium point, the quantity of goods and services supplied by firms is equal to the quantity of goods and services demanded by households, firms and the government. The Aggregate Price Level at equilibrium is  $P_{EQ}$  and the quantity of goods and services produced (Real National Income) at this equilibrium is  $Y_{EQ}$ .

In the Market Equilibrium notes, we saw that a shortage of any individual good causes its market price to rise but a surplus of the good causes the market price to fall. These forces ensure that the market reaches equilibrium. The same logic applies to macroeconomic equilibrium.

If the price level is above its equilibrium level, the quantity of goods and services produced (Aggregate Supply) is greater than the quantity of goods and services that households, firms and the government want to buy (Aggregate Demand). This leads to a fall in the Price Level (Deflation or at least reduced inflation) until it falls to its equilibrium level.

If the price level is below its equilibrium level, the quantity of goods and services produced (Aggregate Supply) is less than the quantity of goods and services that households, firms and the government want to buy (Aggregate Demand). This leads to a rise in the Price Level (Inflation or at least reduced deflation) until it rises to its equilibrium level.

### **The Way to Think about Macroeconomic Equilibrium**

It is important to keep in mind when talking about the Leaving Cert Economics course that it is based on Keynesian Economics. Keynesian economics is massively concerned with Aggregate Demand. Everything is based on the belief that if Aggregate Demand increases, then National Income increases.

Therefore, your main attention should be based on what happens if spending (Aggregate Demand) increases or decreases.

This line of thinking brings us to our fifth rule of Macroeconomics

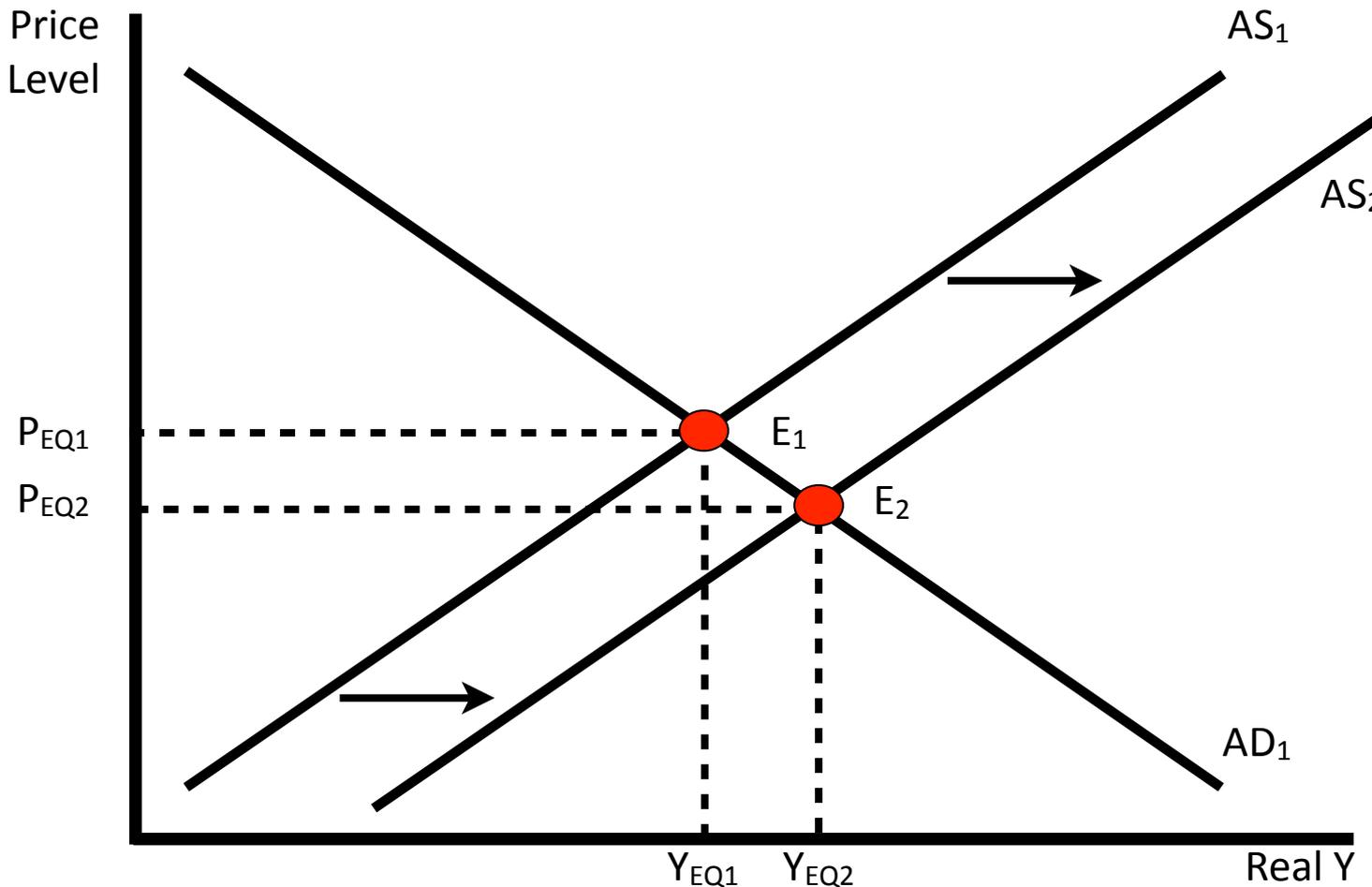
#### **Macroeconomics Rule 5**

We say that the economy is in Macroeconomic Equilibrium when National Output (National Income) is equal to Aggregate Demand  
**AD = Y**

All this rule is saying is that when the economy is in equilibrium, the amount of goods and services that we produce (Real National Income) is the exact same as the amount of goods and services that people are willing and able to buy (Aggregate Demand).

We will now turn our attention to what happens in an economy following either a shift of the Aggregate Supply Curve and, more importantly, a shift of the Aggregate Demand Curve.

### Outward Shift of the Aggregate Supply Curve

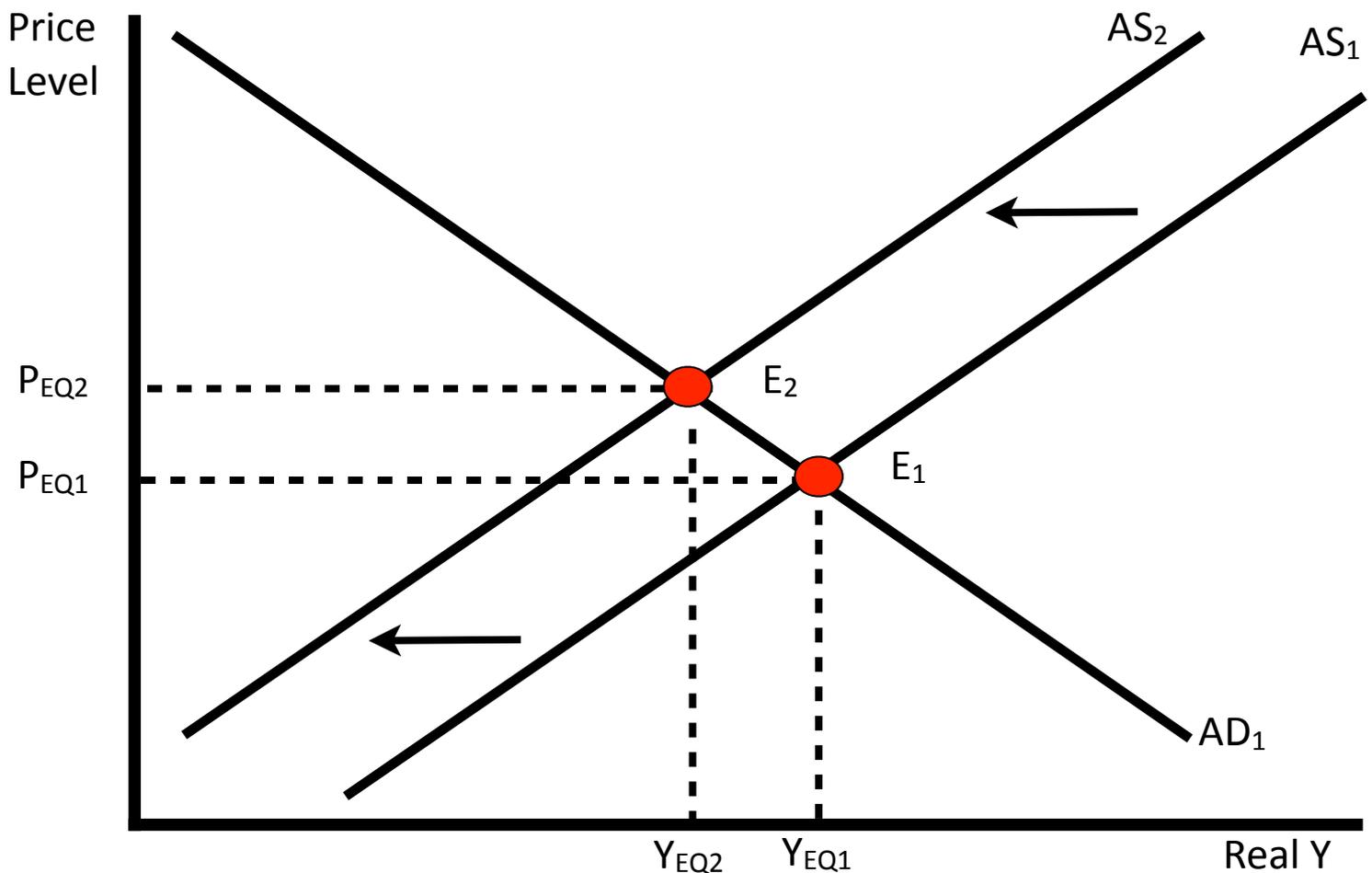


An outward shift of the Aggregate Supply Curve is a Macroeconomists dream. It results in a rise in National Output (from  $Y_{EQ1}$  to  $Y_{EQ2}$ ) meaning an increased standard of living. Also, deflation (or at least a fall in Inflation) from  $P_{EQ1}$  to  $P_{EQ2}$ .

This was the situation in the United States between 1995 and 2000 which produced a huge wave of National optimism combined with an increase in the real standard of living. It was caused by the increasing use of the internet and other information technologies caused productivity (the amount of stuff that a worker can make an hour) growth to surge.

An outward shift of the Aggregate Supply Curve (otherwise known as a positive Supply Shock), reduces production costs (remember an increase in productivity manifests itself as a reduction in production costs) and increases the total quantity produced by domestically owned firms, at any given price level.

### Inward Shift of the Aggregate Supply Curve



If an outward shift of the Aggregate Supply Curve is a Macroeconomists dream, then an inward shift of the Aggregate Supply curve is a Macroeconomists nightmare. It results in a fall in National Output (from  $Y_{EQ1}$  to  $Y_{EQ2}$ ) meaning a reduced standard of living, and inflation (or at least a fall in deflation) from  $P_{EQ1}$  to  $P_{EQ2}$ .

Essentially, what this means is that two bad things are happening at the same time and, for reasons that we will see later, government economic policy finds it very difficult to reduce inflation without making unemployment worse, or to reduce unemployment without making inflation worse. So, when an economy experiences an inward shift of the Aggregate Supply Curve (also known as a negative supply shock), the government makes it very difficult to fix one problem (to reduce inflation or unemployment) without making the other problem worse.

This combination of inflation and falling Real Output (Real Y) shown above, has a special name in macroeconomics, **Stagflation** (Stagnation from the reduction in Real Output and inflation from the increase in the Price Level).

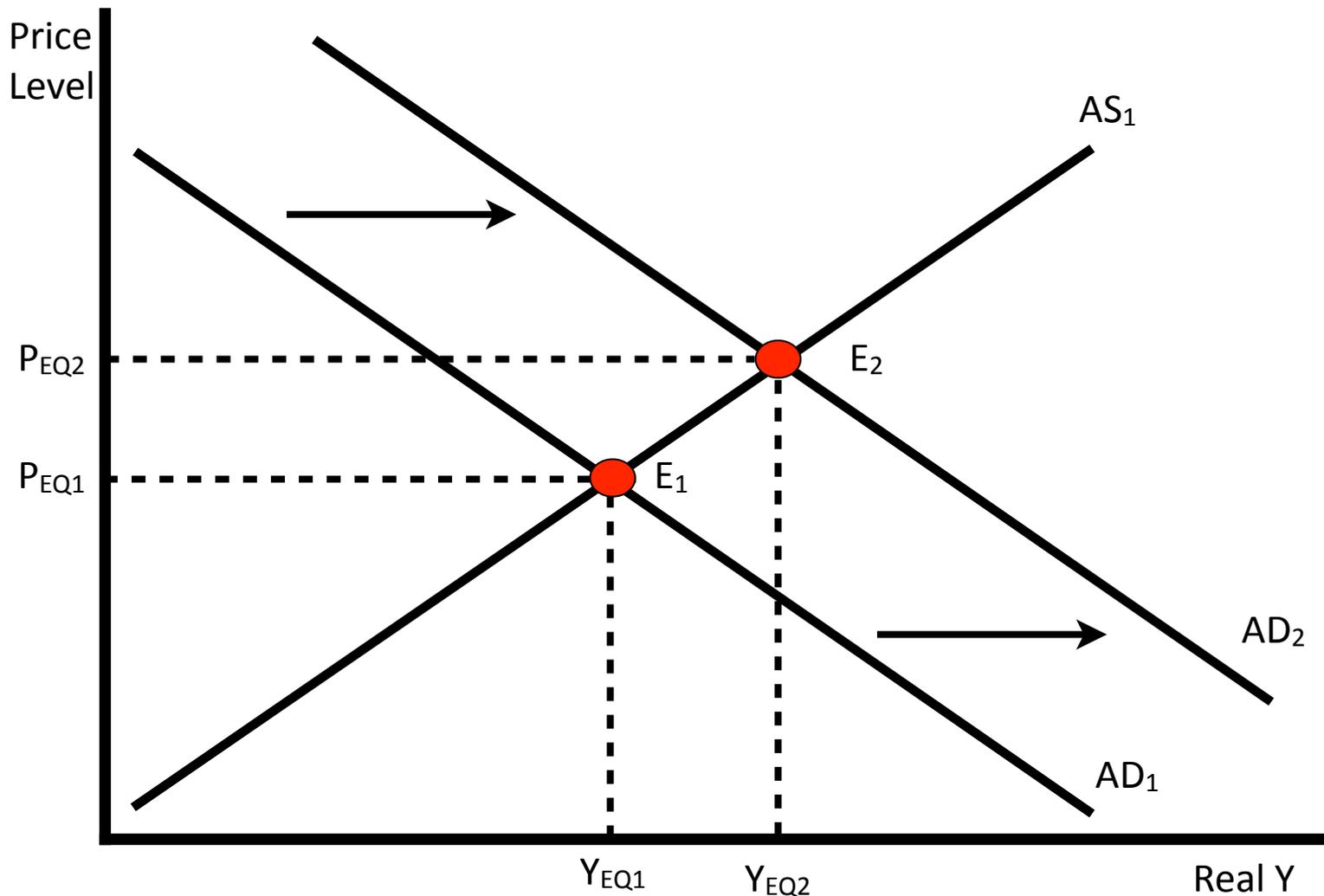
When an economy experiences stagflation, it is very unpleasant. The reduction in output leads to rising unemployment, as firms fire workers as they don't need to produce as much, and consumers feel that their income is being squeezed as prices are rising and hence they cannot afford to buy as much as they could previously.

All around the Western World, stagflation occurred during the 1970's as the Organisation of the Petroleum Exporting Countries (OPEC an oil cartel whose mission is to coordinate the policies of the oil-producing countries. The founding members are Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Later members include Algeria, Angola, Ecuador, Gabon, Indonesia, Libya, Qatar, Nigeria, and the United Arab Emirates.) reduced world oil supplies in order to steeply raised oil prices during the 1973 oil crisis in response to US aid to Israel during the Yom Kippur War. It lasted until March 1974.

This increase in western world oil prices was a huge increase in the cost of production to every firm in the West as oil is an integral component of production. As such firms had to cut back on the quantity of goods and services that they produced as the cost of production had risen so dramatically (the price of oil had quadrupled from \$3 per barrel to \$12 per barrel in 1973).

The reduction of output from firms caused an inward shift of the Aggregate Supply curve. As the cost of production rose, firms cut back on production, laying off workers in the process. It posed an incredibly difficult problem for US policy makers to solve and was really only solved by the continuous unpopular actions of FED Chairman Paul Volcker but we will look at that more later on.

### Outward Shift of the Aggregate Demand Curve



We see from the above diagram that Aggregate Demand Has increased. Reminding ourselves that Aggregate Demand is the quantity of goods and services that households, firms, the government and the rest of the world wish to buy at every given price, an outward shift of the Aggregate Demand Curve simply means that people want to buy more goods and services.

We will look at the many different things that cause the Aggregate Demand curve to shift in the next handout (there are 14 according to the Leaving Cert course), but for now an outward shift means that people want to buy more.

It is incredibly important to be able to say what happens to an economy following an outward or inward shift of the Aggregate Demand curve as the Leaving Cert course is primarily based on the idea that Aggregate Demand is what brings the economy into equilibrium.

If we think of Aggregate Demand as spending; and an outward shift of the Aggregate Demand curve means that spending has increased, then we need to consider the effects on the economy if this happens.

## **The Six Points you can Make if Spending (Aggregate Demand) Increases**

- 1) **Aggregate Demand Increases:** If spending rises then Aggregate Demand has also risen. I know that this is stating the obvious but you get marks for writing this down in the Leaving Cert. All this means is that people are more willing and more able to buy goods and services and as such they are doing so.
- 2) **The Price Level Increases:** If, on average, everyone in the economy is spending more or buying more goods and services then this has the effect of causing the average price of everything to go up. This is because as people have more wealth or spend more borrowed money, they are competing for the same goods and services. In order to get these scarce goods and services they have to outbid other consumers and this causes the prices of all goods tends to rise.
- 3) **Real Output (Y) Increases:** As consumers are buying more and the price that producers can sell these goods for is rising, this lets the sellers realise that they can sell more goods at a higher price and as such earn more profit. This causes them to increase the amount of goods and services that they produce and as such the quantity of goods and services produced in the economy increases resulting in a higher standard of living for all.

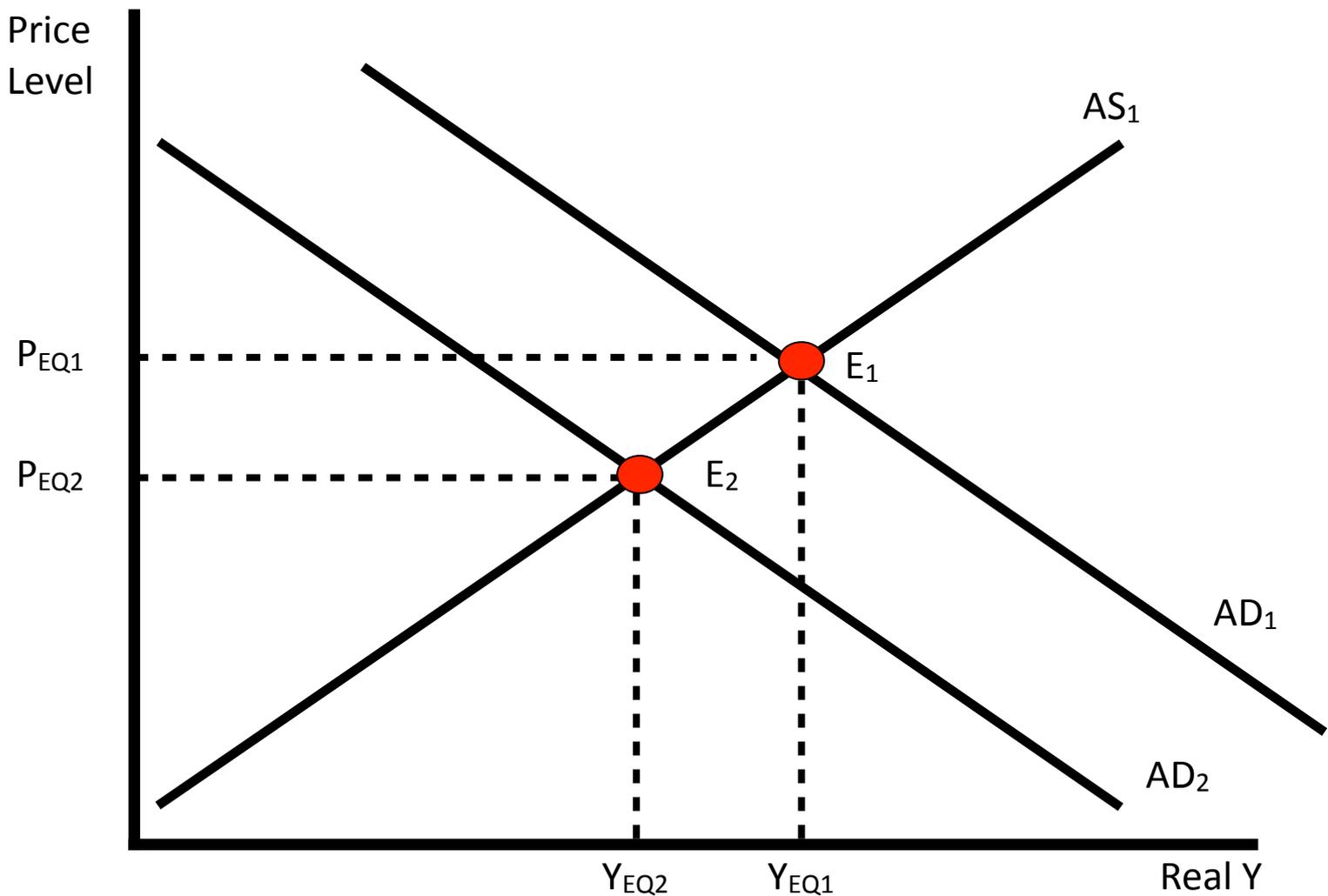
**NOTE:** The above three points can be seen directly from looking at the diagram on the previous page. The following three point can not be seen from the diagram but hopefully can be understood from the application of logic.

- 4) **Employment Increases:** As we said in point three, firms are producing more goods and services as there is now greater profit in that production. The only way that firms can produce more goods and services is by using or employing more factors of production to make this extra stuff. One of these factors of production is labour and as such, following a rise in Aggregate Demand, we would expect employment to rise.
- 5) **Savings Increases:** As output has risen, we as a nation have become richer. Rich people save more money than poor people. As they are earning more money, rich people can easier afford the necessities and some luxuries and still have money left over to save. The same is true for countries as a whole. Rich nations tend to save more than poorer ones, so we can assume that savings will increase.
- 6) **Imports Increase:** Again, with more being produced, we are richer. As such we can afford to buy nicer things. One way to obtain these nicer

things is to import them and as such, following an outward shift in the Aggregate Demand Curve, we would expect imports to rise.

<b>Macroeconomics Rule 6</b>		
<b>If Spending (Aggregate Demand) Increases, then</b>		
Aggregate Demand ↑	Real Output ↑	Savings ↑
The Price Level ↑	Employment ↑	Imports ↑

**Inward Shift of the Aggregate Demand Curve**



We see from the above diagram that Aggregate Demand has decreased. Again, Aggregate Demand is the quantity of goods and services that households, firms, the government and the rest of the world wish to buy at every given price, an inward shift of the Aggregate Demand Curve simply means that people want to buy less goods and services.

## **The Six Points you can Make if Spending (Aggregate Demand) Decreases**

- 1) **Aggregate Demand Decreases:** If spending falls then Aggregate Demand has also fallen. Again, this is stating the obvious but you get marks for writing this down in the Leaving Cert. All this means is that people are less willing and less able to buy goods and services and as such they are buying less.
- 2) **The Price Level Decreases:** If, on average, everyone in the economy is spending less or buying less goods and services then this has the effect of causing the average price of everything to go down. This is because as people have less wealth or spend are borrowing less money, there is less competition for the same goods and services. In order to get these scarce goods and services, do not have to outbid other consumers and, as such the prices of all goods tends to fall.
- 3) **Real Output (Y) Decreases:** As consumers are buying less and the price that producers can sell these goods for is falling, sellers realise that they can not sell the same quantity of goods and services that they were selling before at the price that they were selling before and as such cut back on production as there is not the same level of profit in production that there was before. more goods at a higher price and as such earn more profit. This causes the quantity of goods and services produced in the economy to decrease resulting in a lower standard of living for all (a recession).

**NOTE:** The above three points can be seen directly from looking at the diagram on the previous page. The following three point can not be seen from the diagram but hopefully can be understood from the application of logic.

- 4) **Employment Decreases:** As we said in point three, firms are producing less goods and services as there is now less profit in that production. The main way that firms can produce less goods and services is by using or employing fewer factors of production than was previously the case. One of these factors of production is labour and as such, following a fall in Aggregate Demand, we would expect employment to fall.
- 5) **Savings Decreases:** As output has fallen, we as a nation have become Poorer. Poor people save less money than rich people. As they are earning less money, poor people can not easily afford the necessities and as such have little left over to save. The same is true for countries as a whole. Poor nations tend to save less than rich nations, so we can assume that savings will decrease.

- 6) **Imports Decrease:** Again, with less being produced, we are poorer. As such we are less able to afford nicer things. Following a fall in Real Y, our ability to buy imports has reduced as we are poorer and after an inward shift in the Aggregate Demand Curve, we would expect imports to fall.

Macroeconomics Rule 7		
If Spending (Aggregate Demand) Decreases, then		
Aggregate Demand ↓	Real Output ↓	Savings ↓
The Price Level ↓	Employment ↓	Imports ↓