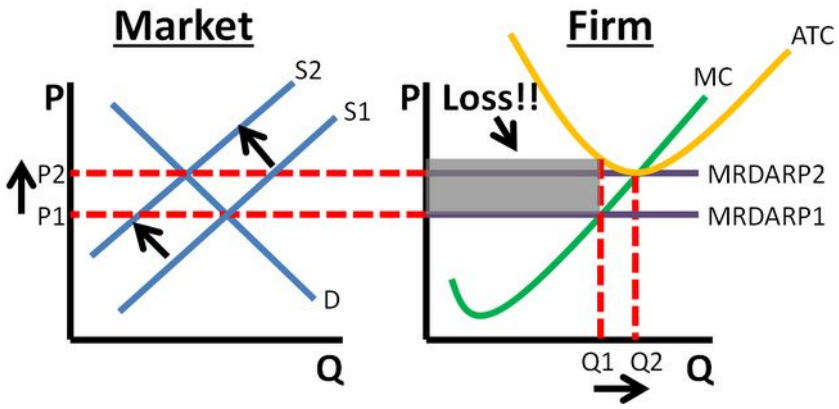
2020 Micro FRQ Graph Sheet

These are modified versions of the graphs on reviewecon.com for perfect competition

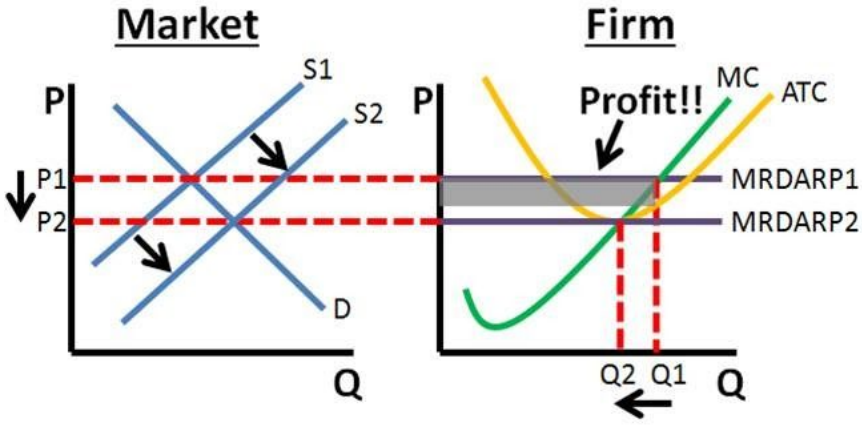


Perfect Competition from short-run loss to long-run equilibrium

The economic loss causes firms to exit the industry, shifting the supply curve left, raising the price (MR=D=AR=P) until the firm breaks even.

**Productively efficient in the long run (produces at the minimum of the ATC or D=P=min.ATC).

Allocatively Efficient in the long-run and the short-run (D=Price=MC)



Perfect Competition from short-run profit to long-run equilibrium.

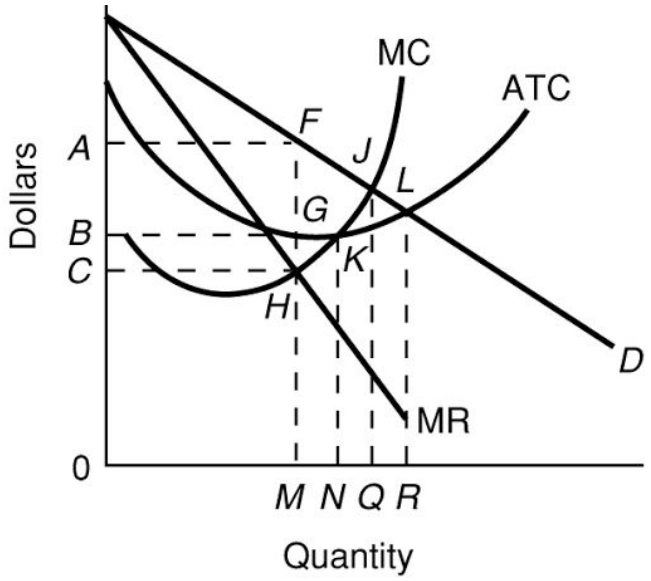
The economic profit causes firms to enter the industry, shifting the supply curve right, lowering the price until the firm breaks even.

**Productively efficient in the long run (produces at the minimum of the ATC or D=P=min.ATC).

Allocatively Efficient in the long-run and the short-run (D=Price=MC)

***A change in Fixed costs only shifts the AFC and ATC (up with an increase or down with a decrease) Example: Lump-sum tax**

****A change in variable costs shifts the AVC, ATC, and MC (up with an increase or down with a decrease) Example: Per-unit tax**

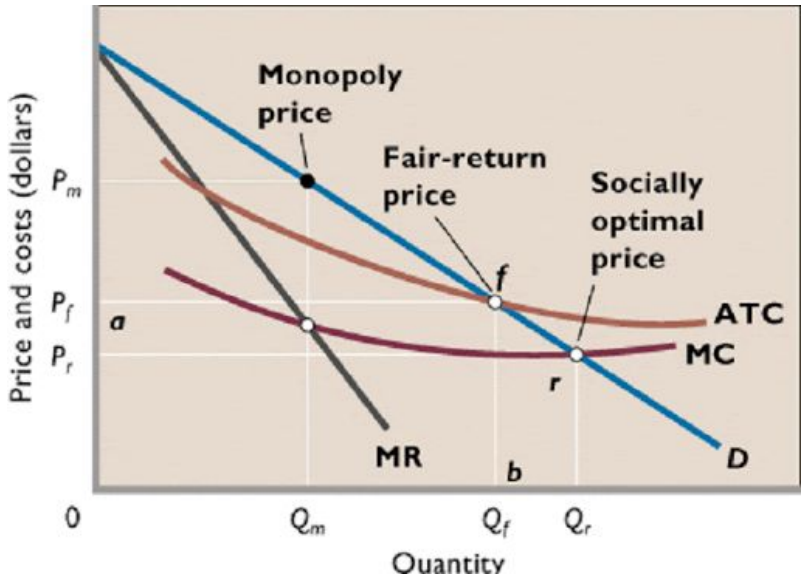


Pure or Single Price Monopoly

1. Firm will charge where MR=MC at quantity M and go up to the demand at point F over to price A.
2. Profit will be rectangle AFGB
3. The monopolist will produce in the elastic range of the curve if left alone or to the left of where MR hits the quantity axis or where MR is positive.
4. Allocative efficiency will occur at MC=D=P or point J, also called Socially Optimal
5. Deadweight loss would be triangle FJH
6. Fair return would occur at point L, where ATC=D=P

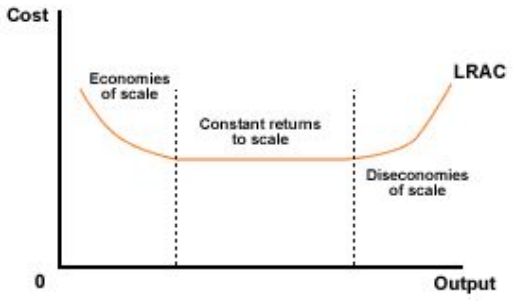
***A change in Fixed costs only shifts the AFC and ATC (up with an increase or down with a decrease) Example: Lump-sum tax**

****A change in variable costs shifts the AVC, ATC, and MC (up with an increase or down with a decrease) Example: Per-unit tax**



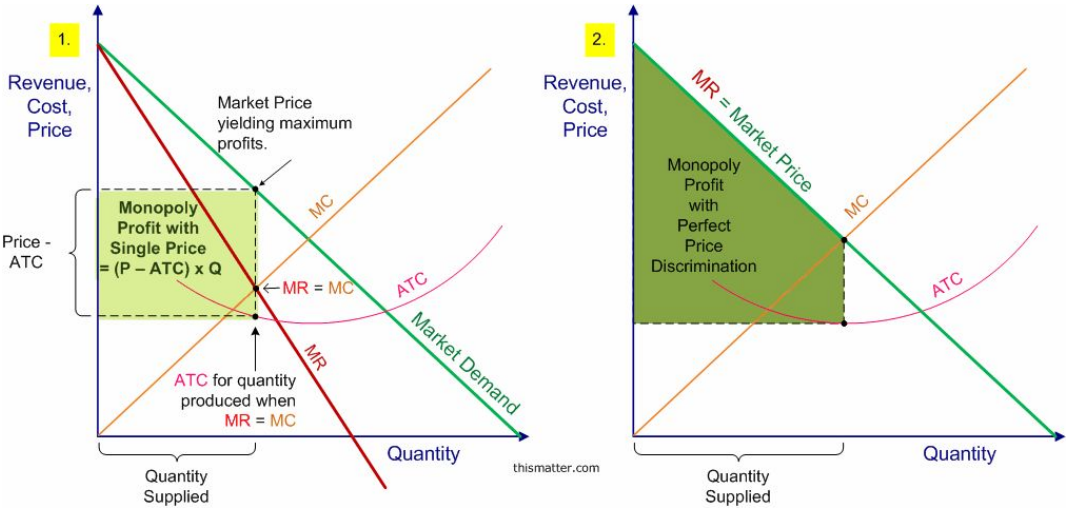
Natural Monopoly

1. If unregulated the monopoly will profit max going to MR=MC up to the Monopoly price
2. The Socially Optimal or Allocative Efficient price is where MC=D=P. Notice the firm would lose money here as they are producing below the ATC curve at point r.
3. The Fair-return price occurs where ATC=D=P at point f, the firm would break-even here achieving accounting, but not economic profit.
4. Notice the relative flatness of the ATC and MC curves as the Natural Monopolist is usually as bigger firm that uses economies of scale to make an industry with large fixed costs cheaper for everyone by spreading fixed costs among more consumers (example: an electric company spreading fixed costs for a power plant, telephone poles, wires, etc. over a large area to many customers makes the fixed costs cheaper per person and thus the power cheaper)
5. If a firm is producing on the initial downward sloping part of it's ATC (shown as LRAC on below graph) it is producing with economies of scale.



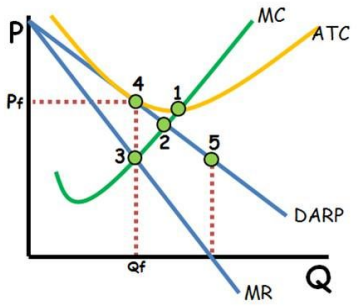
***A change in Fixed costs only shifts the AFC and ATC (up with an increase or down with a decrease) Example: Lump-sum tax**

****A change in variable costs shifts the AVC, ATC, and MC (up with an increase or down with a decrease) Example: Per-unit tax**



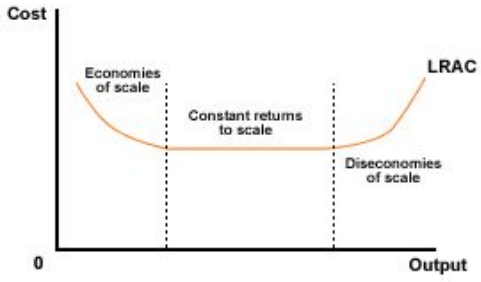
Price Discriminating Monopoly

1. The perfectly price discriminating monopoly is on the right.
2. It will charge the Allocative or Social Optimal price where MC=D=P.
3. This means that there is no deadweight loss!
4. The MR=D because we are charging everyone exactly what they are willing to pay. That means the profit maximizing rule is followed by the firm at MR=MC=D.
5. There is **no** Consumer Surplus, only Producer Surplus and notice the difference in the profit on each graph.



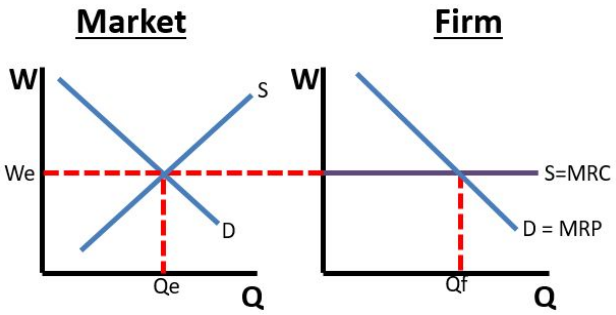
Monopolistic Competition in Long Run Equilibrium

1.Productive efficient point (Minimum of ATC)
2.Allocative efficient point (MC=MB)
3.Profit maximizing rule (MR=MC) at Qf
4.Profit max up to demand, firm will charge price Pf (MR=MC)
Excess capacity is the horizontal distance from 4 to 1, the point we are producing at (4 or MR=MC) to the minimum ATC (1 or productive efficiency)
5.Unit elastic point on the demand curve (where MR equals zero at that quantity). Demand is inelastic below and elastic above this point.
•Dead Weight loss is in the triangle between points 2,3, & 4.
•If the firm is making a profit (the ATC is lower than price or the demand curve), firms will enter the market giving each existing firm a smaller share of the market. That shifts Demand and MR to the left. [Don't forget that profits attract sellers and increase Supply in the market, but this decreases Demand for the firm, if you open a new Moe's by the Chipotle, it increases the Supply of fast casual Tex-Mex but it decreases the Demand for that existing Chipotle]
•If the firm is incurring a loss (ATC higher than price or the demand curve), the opposite occurs as firms exit the market. [Some firms will go out of business decreasing the Supply curve in the market, thus increasing the Demand curve for the firm. If the new Moe's goes out of business, the Supply of fast casual Tex-Mex in the market decreases, but the Demand for the Chipotle firm that remains will increase with less competition]
**If a firm is producing on the initial downward sloping part of it's ATC (shown as LRAC on below graph) it is producing with economies of scale (EOS). Monopolist Competitors produce w/ Economies of Scale.



***A change in Fixed costs only shifts the AFC and ATC (up with an increase or down with a decrease)**
Example: Lump-sum tax

****A change in variable costs shifts the AVC, ATC, and MC (up with an increase or down with a decrease)**
Example: Per-unit tax



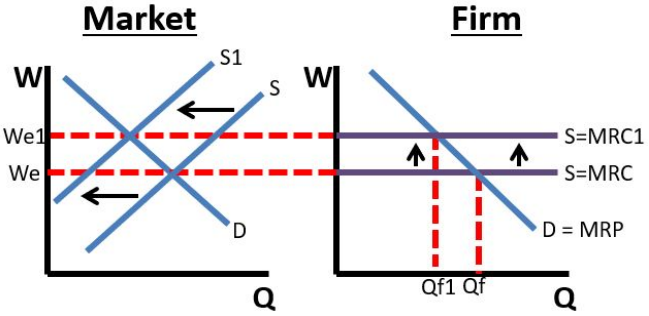
Perfectly Competitive Labor/Resource Market

The Market

When drawing a perfectly competitive factor market, there are two side by side graphs; one for the industry (the market) and one for the firm. The industry (or market) is a regular supply and demand curve. The equilibrium wage (price) in the market establishes the wage each firm will pay its workers.

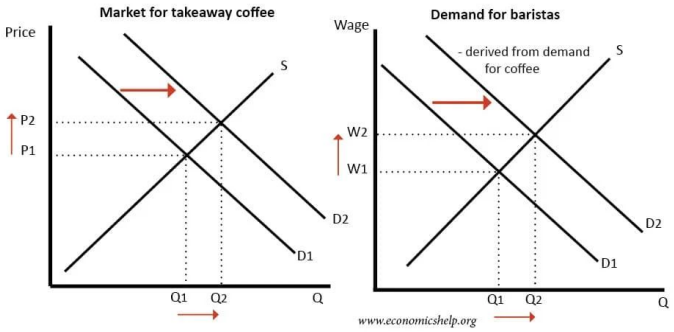
The Firm

Since each firm can hire as many workers as it wants at the market wage, the labor supply curve for the firms is horizontal at the market wage. The firm is a wage (price) taker! Also, the market wage equals the cost of hiring more workers so the supply curve equals the marginal resource cost (MRC). Any changes in the market wage will also shift the firm's MRC and supply. The firm's demand curve is equal to the marginal revenue product (MRP) of the firm's workers and it is downward sloping. A profit maximizing firm hires the # of workers where **MRC=MRP** at Qf.



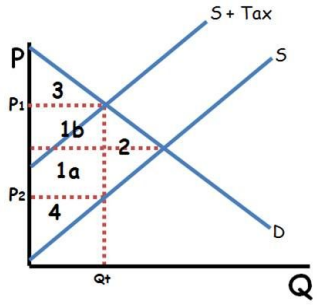
Perfectly Competitive Resource Market w/ decrease in Market Supply

The graphs above show a decrease in the supply of labor in the Market. That causes the wage to increase, and with that the firm's MRC (Supply) shifts upward. As a result, the firm hires fewer workers.



Derived Demand for a Resource

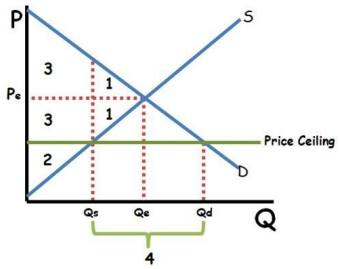
You won't see these two graphs on the exam but you will see the concept. If the demand for coffee increases, you will get an increase in the demand for the resources that produce it (baristas). So if demand for coffee increases so will it's price, and the wage or price of anything that helps produce it.



Market Graph with per-unit Tax

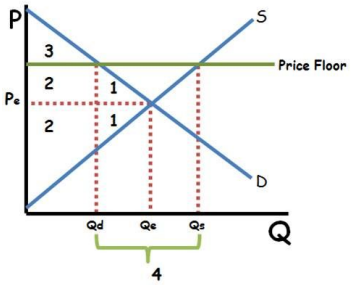
1.Total Tax Revenue (1a + 1b)
1a Producer tax burden
1b consumer tax burden
2.Dead weight loss
3.Consumer Surplus after tax
4.Producer Surplus after tax

•Qt= Quantity produced & demanded after tax
•Price of tax = P1-P2 ***Total surplus= PS+CS
•P1=Price consumers pay
•P2=Price producers receive
**This is a per-unit excise tax
**This tax reduces efficiency & creates deadweight loss.
**Tax revenue is part of economic surplus along with consumer and producer surplus.



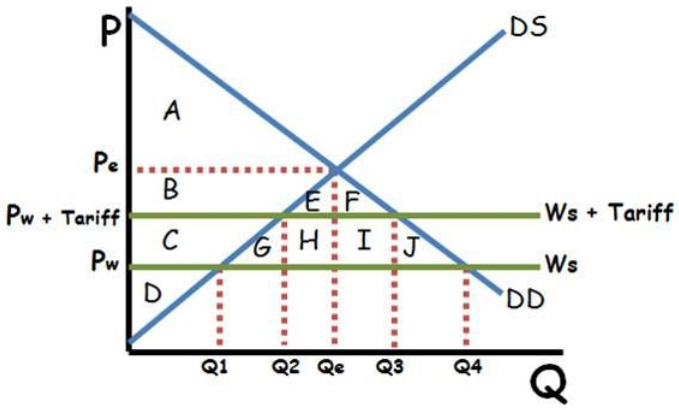
Binding Price Ceiling

1.Triangle 1 is dead weight loss
2.Producer surplus
3.Consumer Surplus ***Total surplus= PS+CS
4.There is a Shortage of products in the market (Qs<Qd or specifically Qd-Qs is the amount of shortage)
•The quantity that actually exchanges hands is Qs (there can be more sold than producers are willing to sell at the current price).
**Binding price ceilings create shortages. A ceiling above equilibrium is non-binding and has no impact.



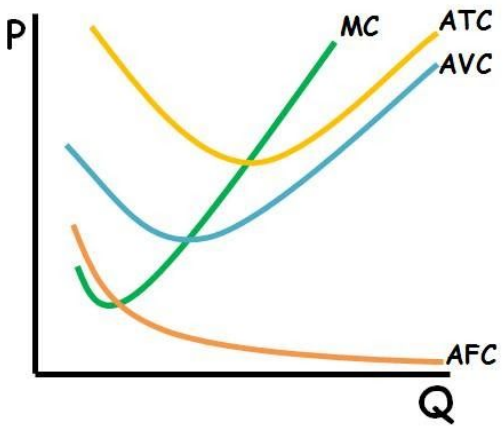
Binding Price Floor

1.Triangle is dead weight loss
2.Producer surplus
3.Consumer Surplus ***Total surplus= PS+CS
4.There is a surplus of products in the market (Qs>Qd)
•The quantity that actually exchanges hands is Qd (there can be more sold than consumers are willing to buy at the current price).
**Binding price floors create surpluses. A floor below equilibrium is non-binding and has no impact.



International Trade and Tariff

No trade:	No Tariff:	With Tariff:
Equilibrium is Pe and Qe	Pw is the price (Price world)	Pw+Tariff is the price
Consumer surplus is triangle A	Q1 is the amount domestically produced.	Q2 is the amount domestically produced
Producer surplus is triangle BCD	Q4 is the amount domestically consumed	Q3 is the amount domestically consumed
	Q4-Q1 is the amount imported	Q3-Q2 is imported
	Consumer surplus is triangle ABCEFGHIJ	Consumer Surplus is triangle ABEF
	Producer Surplus is triangle D	Producer Surplus is triangle CD
		Tax Revenue is area HI
		Dead weight loss is areas GJ



A Firm's Cost Curves

•**AFC** – Represents all the costs the business must pay to operate even if they produce zero output. Also called sunk costs. i.e. rent, insurance, loan payments, lump sum tax etc. **A change in Fixed costs only shifts the AFC and ATC (up with an increase or down with a decrease) Example: Lump-sum tax**

•**AVC** – Represents the costs associated with producing more or less output. i.e. labor, raw materials, per unit tax, etc. **A change in variable costs shifts the AVC, ATC, and MC (up with an increase or down with a decrease) Example: Per-unit tax**

•**ATC** = AVC + AFC

•**MC** = The costs associated with producing one more unit of output (impacted by variable costs)