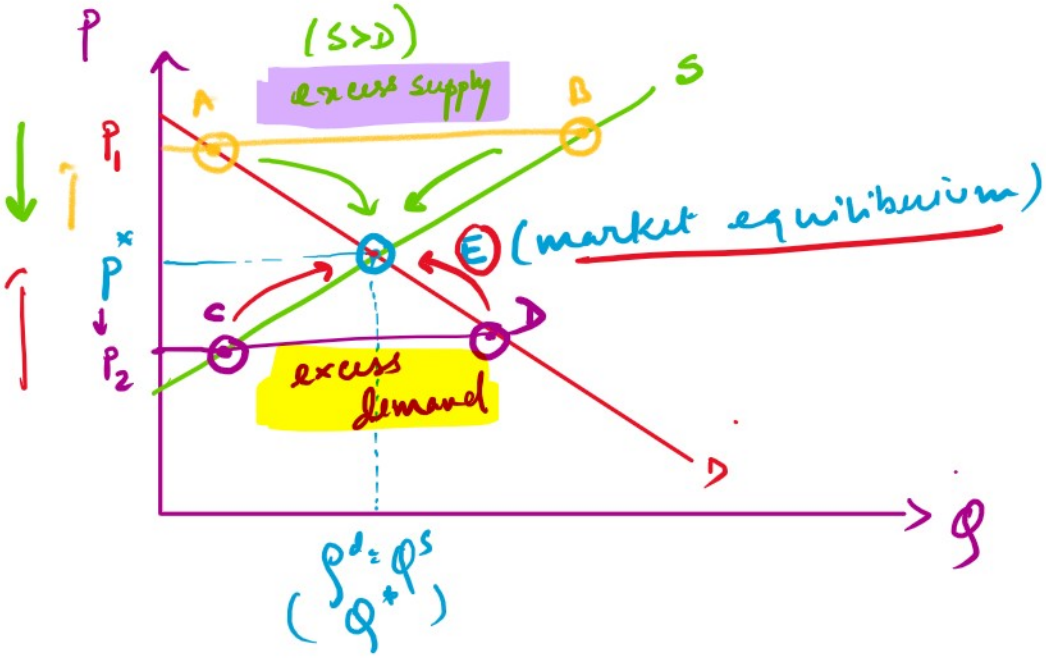
03 December 2023 07:37 PM

Market Equilibrium → it mean market clears.
That is it mean demand is exactly equal to supply.

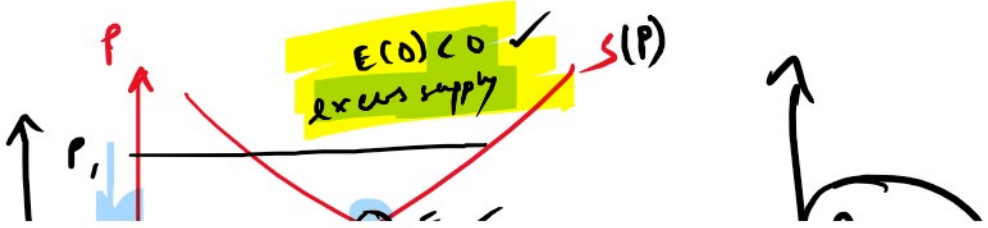
both buyers and sellers exist together

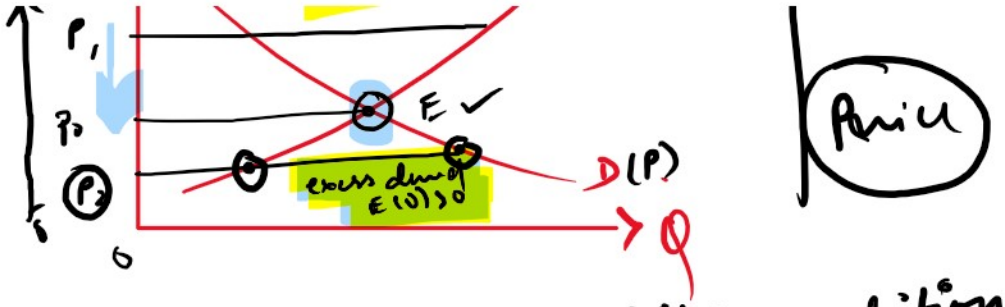
equil → P, Q ← equilibrium.



Stability of Market equilibrium

A) The Walrasian Approach (price adjustment)





The Walrasian stability condition is based on the assumption that the buyers tend to raise their bids if excess demand is positive and sellers tend to lower their bids if (excess supply) is (positive) or excess demand is negative.

So a market is stable if a price rise reduces excess demand.

If $E(P)$ is the excess demand at price P, then, $E(P) = D(P) - S(P)$.

for stability we must have, $\frac{dE(P)}{dP} < 0$

$$D'(P) - S'(P) < 0$$

$$\frac{dD(P)}{dP} - \frac{dS(P)}{dP} < 0$$

$$\frac{d}{dP} D(P) < \frac{d}{dP} S(P)$$

$$\left|\frac{d}{dP} D(P)\right| > \left|\frac{d}{dP} S(P)\right|$$

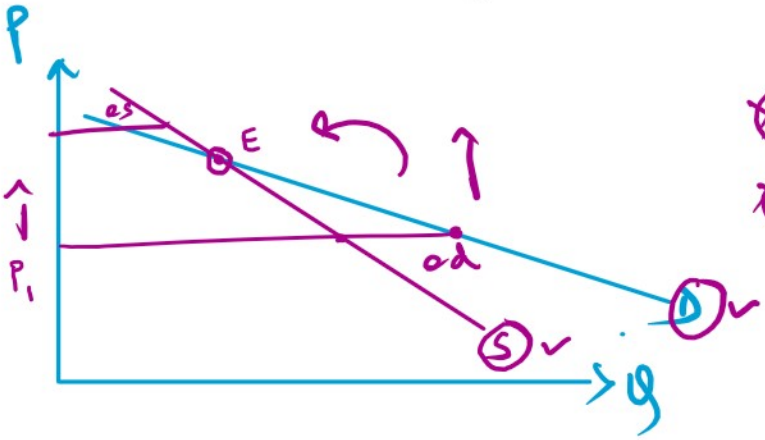
$$\left|\frac{\partial}{\partial P} D(P)\right| > \left|\frac{\partial}{\partial P} S(P)\right|$$

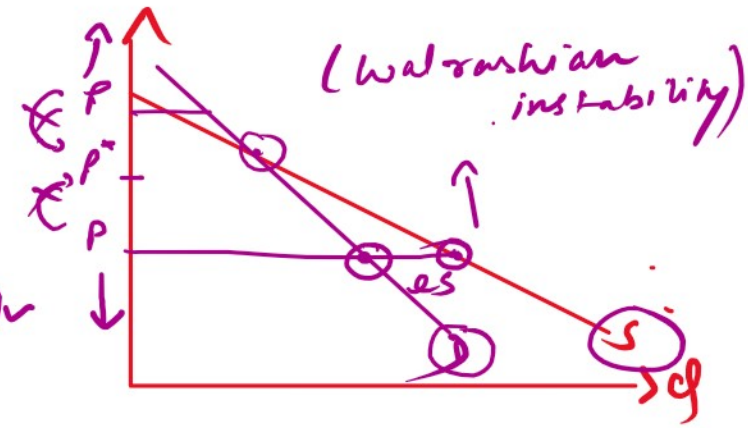
Slope of demand $>$ slope of supply

Slope of supply > Slope of demand

This means that the absolute value of the slope of the demand curve should be less than the absolute value of the slope of supply curve.

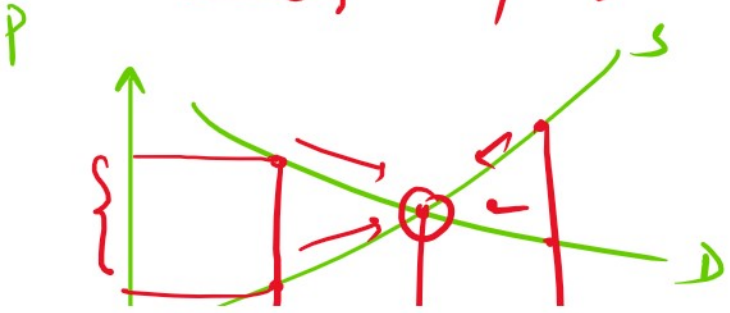
This condition is automatically satisfied in the above figure.

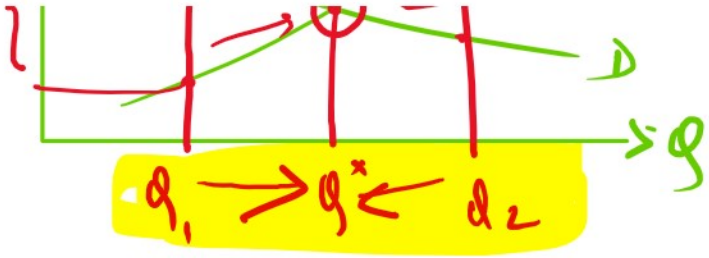




B. Marshallian Stability

(Quantity adjustment)



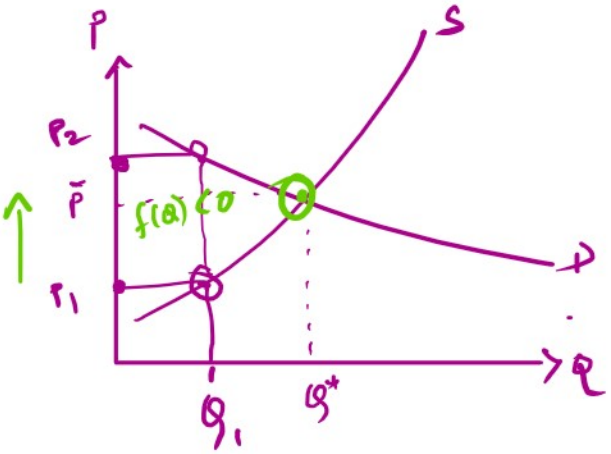


This condition is based on the demand price and supply price.

The **demand price** of a commodity (p^d) can be defined as the **price that a consumer is willing to pay** for any **given quantity** of **commodity**.

Similarly the supply price (p^s) of a commodity is that price that a seller is willing to receive for any given quantity of a commodity.

$\therefore$ $p^d = f^d(q)$ and $p^s = f^s(q)$



Now the Marshallian stability condition required the market equilibrium will be stable if excess demand price (F) varies inversely with quantity of commodity.

ie. Let us define excess demand price as $F(q) = p^d - p^s$

price as $F(Q) = P^d - P^s$

and condition for Marshallian stability is $\frac{d}{dQ} F(Q) < 0$

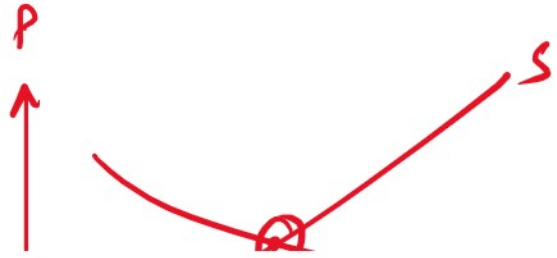
that is $\frac{d}{dQ}(P^d) \cdot \frac{dQ}{dQ} < \frac{d}{dQ}(P^s)$

that is (slope of demand < slope of supply)

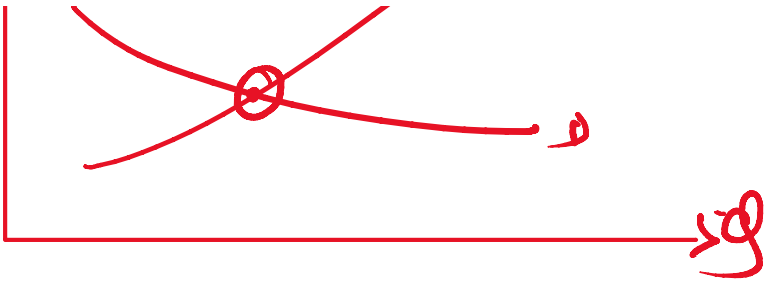
Conclusion: From the above analysis it is quite clear if demand is downward sloping and supply is upward sloping then there is no conflict between Walrasian and Marshallian stability.

But Note: If both demand and supply are downward sloping then there is conflict between Walrasian and Marshallian demand curve.

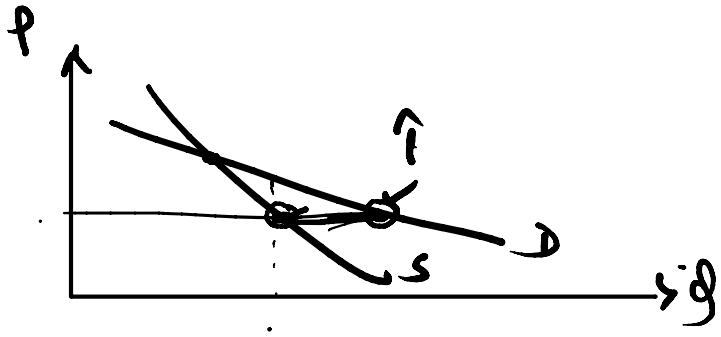
Diagram: (a)



Marshallian stability and Walrasian stable.

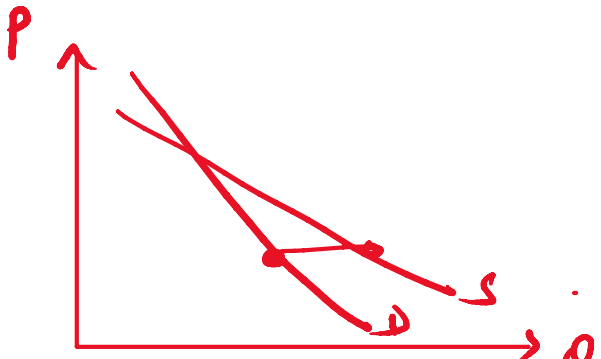


(b)



Walrasian stable $\left(\frac{dE(P)}{dP} < 0\right)$

but Marshallian unstable $\left(\frac{dE(Q)}{dQ} > 0\right)$



walrasian unstable $\left(\frac{dEP}{dP} > 0\right)$

(But Marshallian stable $\frac{dEQ}{dQ} < 0$)