Government Tools : Price Controls, Quantity Controls, Taxes & Subsidies

  Price Controls : Price Ceiling := a max price sellers can legally charge   (must lie below eq. p to be effective)

              ↳ lower prices but cause shortages ... Q^S determines Q

                   Unintended Consequences : longer search time, black markets, add-ons, discrimination by seller, low quality products

         Price Floor := a min price sellers can legally charge (must lie above eq. p to be effective)

            ↳ increase prices but cause surpluses ... Q^D determines Q

            how to fix surplus : increase demand or decrease supply

                            purchase the surplus product at price floor
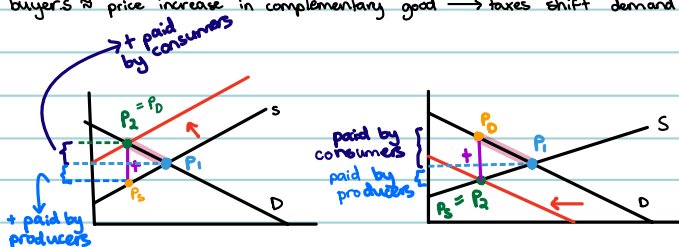
Quantity Controls : mandate := requirement to buy or sell a minimum amount of a good

              quota := a limit on the maximum amount of goods that can be sold

Taxes & Subsidies : tax := the amount the government collects for every unit produced / sold

              tax on sellers ≈ additional cost ⟶ taxes increase marginal costs & shift supply curve left

              tax on buyers ≈ price increase in complementary good ⟶ taxes shift demand curve left

equal tax on producers or consumers yields equal price & quantity changes

           ⟹ By convention, tax the supply side :   EX : $P^D = 14 - 3Q^D$

                                          $P^S = 6 + Q^S$

                              τ = 2 ⟹ $P^S - 2 = 6 + Q^S$ OR $P^D + 2 = 14 - 3Q^D$

                                      $P^S = 8 + Q^S$ $P^D = 12 - 3Q^D$

                              8 + Q = 14 - 3Q   12 - 3Q = 6 + Q

                              4Q = 6   4Q = 6

                              $Q = \frac{3}{2} \to P = \frac{15}{2}$ $Q = \frac{3}{2} \to P = \frac{15}{2}$
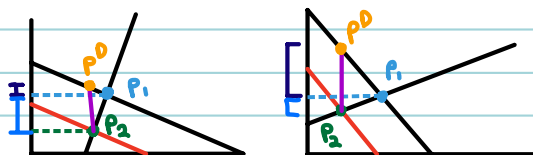
          subsidy := the amount the government pays for every unit produced / sold

            ↳ negative tax

Price Elasticity & Tax Incidence

   less elastic curve ⟹ bear more tax

        EX : $P^D = 14 - 3Q^D$ ⎫
                            14 - 3Q = 6 + Q ⟹ 4Q = 8 ⟹ Q = 2 ⟹ P = 8
             $P^S = 6 + Q^S$ ⎭

         w/ tax : $Q = \frac{3}{2} \to P = \frac{15}{2}$

         $P^D = 14 - \frac{9}{2} = \frac{19}{2}$; $P^S = 6 + \frac{3}{2} = \frac{15}{2}$

         $\frac{19}{2} - 8 = \frac{3}{2}$; $8 - \frac{15}{2} = \frac{1}{2}$

         consumers pay $\frac{3}{2}$; producers pay $\frac{1}{2}$