### **2.6 Price Elasticity of Supply (PES)**

**2 Marker Questions**

1. **Q: Define Price Elasticity of Supply (PES).  
   Answer:** Price Elasticity of Supply (PES) measures the responsiveness of the quantity supplied of a good or service to a change in its price. It is calculated as the percentage change in quantity supplied divided by the percentage change in price.
2. **Q: What does a PES value greater than 1 indicate?  
   Answer:** A PES value greater than 1 indicates that the supply of a good is **elastic**. This means that producers can increase the quantity supplied by a greater percentage than the percentage increase in price, typically because they have the ability to quickly adjust production levels.

**4 Marker Questions**

1. **Q: Explain what it means for a good to have an elastic supply.  
   Answer:** A good has an **elastic supply** when the percentage change in quantity supplied is greater than the percentage change in price (PES > 1). This means that producers can easily and quickly respond to price increases by significantly increasing the quantity supplied. Goods with elastic supply typically have available resources and production capacity that can be quickly adjusted, such as goods produced in industries with flexible production processes or goods that can be stored for long periods. For example, agricultural products like wheat often have elastic supply in the short run as farmers can increase production by utilizing more land or resources.
2. **Q: Describe two factors that influence the price elasticity of supply.  
   Answer:**
   1. **Time Period:** The length of time producers have to adjust to a price change significantly affects PES. In the **short run**, supply is typically less elastic because producers have limited ability to adjust production processes or resources. In the **long run**, supply becomes more elastic as producers can invest in new technologies, expand production capacity, or change the scale of operations.
   2. **Spare Production Capacity:** If a firm has **unused or underused production capacity**, it can quickly increase supply in response to higher prices, making the supply more elastic. On the other hand, if production capacity is fully utilized, it is harder to expand output in the short term, making supply inelastic.

**6 Marker Questions**

1. **Q: Explain the difference between elastic and inelastic supply, using examples.  
   Answer:** Elastic supply occurs when a small change in price leads to a large change in the quantity supplied (PES > 1). This is often seen in industries where production can be easily scaled up or down, such as in the technology sector where new units of a product like smartphones can be produced quickly in response to price increases. Inelastic supply, on the other hand, occurs when a price change leads to a smaller change in quantity supplied (PES < 1). This is common in industries with limited production capacity or where resources cannot be easily adjusted. For example, the supply of agricultural products like oranges can be inelastic because the quantity produced is limited by factors such as climate and seasonal changes, meaning farmers cannot rapidly increase supply in response to a price rise.
2. **Q: How does the availability of factors of production influence the price elasticity of supply?  
   Answer:** The **availability of factors of production** plays a significant role in determining the elasticity of supply. When a firm has easy access to the necessary **labor**, **capital**, and **raw materials**, it can quickly increase production in response to a price increase, making supply more elastic. For example, in industries where production is capital-intensive, such as car manufacturing, firms may face limitations in scaling up production if the availability of machinery or skilled labor is restricted. On the other hand, in industries where labor and raw materials are abundant, supply tends to be more elastic, as firms can readily hire more workers or source more materials to increase output. Therefore, supply is more elastic when there is flexibility in the use of factors of production.

**8 Marker Questions**

1. **Q: Discuss the factors that affect the price elasticity of supply and provide examples of how each factor influences PES.  
   Answer:** Several factors influence the price elasticity of supply (PES), determining how responsive producers are to changes in price. These factors include:
   1. **Time Period:** In the **short run**, supply is often more inelastic because firms have limited time to adjust their production capacity. For example, if the price of oil rises suddenly, it may take months or even years for oil producers to increase output because of the time needed to extract and refine oil. In the **long run**, supply becomes more elastic because firms have time to invest in new technologies, expand capacity, and adjust to market conditions. This explains why agricultural production may be more elastic in the long term as farmers can invest in more efficient machinery or increase the use of fertilizer and irrigation.
   2. **Availability of Factors of Production:** The easier it is for a firm to acquire factors of production (e.g., labor, capital, raw materials), the more elastic the supply will be. For instance, in industries like manufacturing, if labor is readily available, firms can quickly ramp up production in response to price increases. However, in industries where capital is scarce, such as aerospace manufacturing, supply tends to be more inelastic because the production process requires specialized equipment and skilled labor.
   3. **Spare Capacity:** When firms have **spare production capacity** (i.e., they are not fully utilizing their existing equipment or labor force), they can quickly increase output without significant additional costs. For example, a factory that is only operating at 70% capacity can increase production rapidly if prices rise. On the other hand, firms operating at full capacity will struggle to increase output quickly, making supply more inelastic in the short run.
   4. **Perishability of Goods:** The nature of the good also plays a role. Goods that are **perishable**, like fresh fruits or vegetables, typically have **inelastic supply** in the short term because production cannot be increased quickly, and unsold goods may spoil. For example, strawberries cannot be produced in large quantities on demand because they have a short shelf life, making supply less elastic in response to price changes.
2. In conclusion, the elasticity of supply is determined by the interplay of time, availability of production resources, spare capacity, and the nature of the good. Firms can respond more readily to price changes when they have time to adjust, access to factors of production, and underutilized capacity, leading to a more elastic supply.
3. **Q: Evaluate the importance of price elasticity of supply in determining government policy decisions.  
   Answer:** Price elasticity of supply (PES) plays a crucial role in determining how effective certain government policies will be in regulating markets. The responsiveness of supply to price changes affects how firms react to policy measures such as taxation, subsidies, and regulations. For example, understanding the elasticity of supply helps policymakers decide whether a **tax** on a good or service will significantly affect the quantity supplied or whether it will disproportionately burden producers.
   1. **Subsidies and Price Controls:** If the supply of a good is elastic, subsidies can be more effective in encouraging production, as firms can quickly respond by increasing output. For example, in the case of renewable energy, governments may provide subsidies for solar panel manufacturers, which could lead to a significant increase in production if supply is elastic. Conversely, if supply is inelastic, the same subsidy may not lead to a substantial increase in output, as firms may face limitations in expanding production capacity.
   2. **Taxation and Regulation:** Similarly, if supply is highly elastic, taxes on goods can lead to greater reductions in the quantity supplied. For example, a tax on cigarettes might reduce supply in the short run if producers cannot easily shift production to other products. However, if supply is inelastic, taxes may not significantly reduce the quantity supplied, and producers may simply absorb the tax costs, leading to less impact on the market. Therefore, understanding PES helps policymakers anticipate the effects of their decisions on the overall economy.
   3. **Stabilizing Markets:** In industries with **inelastic supply**, such as housing or healthcare, government intervention is often necessary to stabilize prices and ensure sufficient supply. For instance, rent control policies in areas with inelastic supply may lead to shortages, as landlords cannot increase rents to meet the rising demand. Recognizing the inelastic nature of supply helps policymakers choose more effective regulatory approaches to manage market imbalances.
4. In conclusion, PES is a key factor in shaping government policies. Policymakers need to consider the elasticity of supply when designing taxes, subsidies, and regulations to ensure that their interventions achieve the desired outcomes without unintended consequences.

**10 Marker Question**

1. **Q: Evaluate the importance of price elasticity of supply (PES) in the context of government intervention.  
   Answer:**The price elasticity of supply (PES) plays a critical role in determining the effectiveness of government policies aimed at regulating markets and managing resources. PES measures the responsiveness of producers to changes in price, and understanding it allows governments to design more targeted interventions that can help achieve desired economic outcomes. Below are some of the ways PES influences government intervention.  
   **Government Taxation and Subsidies:**When the government imposes a **tax** on a good or service, it increases the cost of production, which typically leads to a decrease in the quantity supplied. The extent of this decrease depends on the PES. If supply is elastic (PES > 1), producers can easily adjust production and reduce output in response to the tax, leading to a significant decrease in quantity supplied. For instance, a tax on sugary drinks may result in significant reductions in supply if producers can switch to healthier alternatives quickly.  
   Conversely, if supply is inelastic (PES < 1), the quantity supplied will not change much in response to a tax increase, and producers may absorb some of the tax burden. For example, taxes on gasoline may not significantly reduce the quantity of gasoline supplied in the short term because refining capacity and oil extraction are difficult to scale up quickly.  
   **Regulatory Policies:**The effectiveness of government **regulations** also depends on PES. If supply is elastic, regulations such as emissions limits or labor standards can lead to significant changes in production behavior as firms adjust their operations to comply. For example, stricter environmental regulations on factories could lead to reductions in output if firms can easily switch to cleaner technologies. However, if supply is inelastic, firms may struggle to comply with new regulations, leading to increased costs without significant reductions in output.  
   **Price Controls and Market Stability:**In industries where supply is **inelastic**, such as healthcare and housing, governments often intervene through price controls to stabilize the market. Rent controls in areas with inelastic housing supply can prevent rents from skyrocketing, but if supply is highly inelastic, such controls may lead to housing shortages, as landlords are not incentivized to build new properties due to the price ceiling. Conversely, if supply is elastic, developers can respond to price increases by building more homes, leading to more stable market conditions.  
   **Market Stabilization and Efficiency:**Governments must also consider the **time horizon** in which they are intervening. In the short run, supply tends to be less elastic, meaning that government policies may have limited immediate effects on the quantity supplied. However, in the long run, supply becomes more elastic, and firms can adjust production processes, expand capacity, and invest in new technologies. Understanding this time frame is critical for designing policies that are effective in both the short and long term.  
   **Conclusion:**In conclusion, the price elasticity of supply is a fundamental concept for policymakers. It helps them understand how producers will respond to taxes, subsidies, price controls, and other regulations, which allows them to tailor interventions that achieve economic goals while minimizing negative consequences. Governments need to consider the elasticity of supply when intervening in markets, as it has significant implications for the efficiency and stability of their policies.