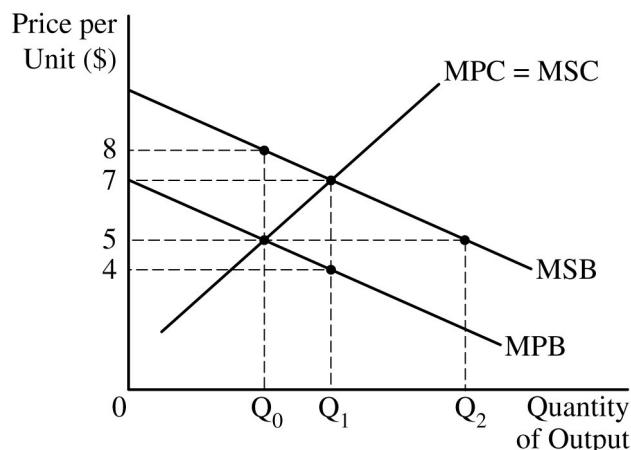


2. Bueno is a firm that produces and sells guava, a type of fruit. The market for guava is perfectly competitive. The marginal private benefit (MPB), marginal private cost (MPC), marginal social benefit (MSB), and marginal social cost (MSC) curves are illustrated in the graph provided.



- (a) Identify the kind of market failure represented by this graph.
- (b) Using numbers from the graph, identify the marginal external benefit.
- (c) Assume the guava market is in short-run equilibrium and Bueno hires workers in a perfectly competitive labor market at a wage of \$20 per hour. The marginal product of the last worker hired was 6 units of guava per hour.
- Calculate the change in Bueno's profit per hour from the last worker hired. Show your work.
  - Suppose that the government decides to provide a per-unit subsidy to consumers who buy guava. How would the per-unit subsidy affect Bueno's marginal revenue product curve? Explain.
- (d) Instead of hiring workers in a perfectly competitive labor market, assume Bueno hires workers in a monopsony labor market. Will the number of workers hired increase, decrease, or stay the same? Explain.

**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

3. In the local market for Good X, there are four individual buyers: Emily, Wu, Omar, and Fernanda. The quantities that each individual buyer would be willing and able to purchase at different prices are included in the table provided.

Price	Quantity of Good X			
	Emily	Wu	Omar	Fernanda
\$1	5	4	4	3
\$2	4	3	4	3
\$3	4	3	3	2
\$4	3	2	3	2
\$5	3	2	2	1
\$6	2	1	2	1
\$7	2	1	1	0
\$8	1	0	1	0

- (a) The local market for Good X has a perfectly elastic supply. Draw a correctly labeled graph for the local market for Good X with a market equilibrium price of \$5. Label the equilibrium price as \$5, and label the equilibrium quantity for the market with a specific value based on the data provided in the table.
- (b) Assume the cost of production increases, which causes the price of Good X to increase from \$5 to \$7.
- Calculate the price elasticity of demand for Good X as the price increases from \$5 to \$7. Show your work.
  - Identify whether the demand for Good X is elastic, inelastic, or unit elastic in that range of prices.
- (c) Could Emily's marginal benefit for the second unit of Good X equal \$4.50 ? Explain.

**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

**Question 2: Short****5 points**


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(a) State that there is a positive consumption externality. **1 point**

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(b) State that the marginal external benefit is \$3. **1 point**

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(c) (i) State that the change in profit per hour for Bueno is \$10 and show your work. **1 point**

Change in Profit per Hour

$$\begin{aligned} &= \text{Marginal Revenue Product (MRP)} - \text{Marginal Factor Cost (MFC)} \\ &= (\$5 \times 6) - \$20 = \$30 - \$20 = \$10 \end{aligned}$$

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(ii) State that Bueno's MRP curve would shift up (or to the right) and explain that the subsidy would increase the demand for guava and increase the price paid by buyers, which would increase MRP for each worker and shift the curve to the right. **1 point**

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**Total for part (c) 2 points**

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(d) State that the number of workers hired will decrease as the quantity of labor hired will occur at a lower quantity of labor where MFC=MRP and explain with **ONE** of the following: **1 point**

- The MFC for a monopsony is greater than the MFC for a perfectly competitive labor market.
- The MFC increases as the monopsony pays higher wages for every worker as it hires more workers whereas the MFC (or wage) is constant for a firm in a perfectly competitive labor market.

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**Total for question 2 5 points**