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Senior-Level "Prices" Online Quizzes and Practice Questions for Two Lecture Topics: "Price Determination in Market Structures with Seller Market Power: Theory and Applications" and "Price Determination in Market Structures with Buyer Market Power: Theory and Applications"

Yuliya V. Bolotova

Assistant Professor of Agribusiness
Department of Agricultural Sciences
College of Agriculture, Forestry and Life Sciences
Clemson University
237 McAdams Hall
Clemson, SC 29634
E-mail: yuliyab@clemson.edu

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Senior-Level "Prices" Online Quizzes and Practice Questions for Two Lecture Topics: "Price Determination in Market Structures with Seller Market Power: Theory and Applications" and "Price Determination in Market Structures with Buyer Market Power: Theory and Applications"

Yuliya V. Bolotova, *Clemson University*

Description: The teaching and assessment materials include two Canvas-based quizzes and practice questions structured using a multiple-choice format, which were developed for two lecture topics on price determination processes in markets with different structures in a senior level "Prices" course. Selected questions were also used in a junior level "Agribusiness Management" course and in a junior level "Economics of Agricultural Marketing" course. The questions related to both the theory and applications are tied to the economic models of seller market power (monopoly and oligopoly) and economic models of buyer market power (monopsony and oligopsony) explained in standard microeconomics textbooks.

Teaching and assessment materials that can be used in online format

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Quiz
Price Determination in Market Structures with *Seller* Market Power: Theory and Applications

The Quiz must be submitted on Canvas. It is recommended to print out the Quiz PDF file available on Canvas in folder "Quizzes" and complete this quiz on paper first. However, you can complete this quiz on Canvas without having a paper quiz in front of you. The correct answers will be available in your feedback on Canvas later today. Canvas shuffles answers. You do not have to e-mail the paper quiz to the instructor. This quiz includes 27 questions.

Quiz points (maximum 100 points): 19 base points + up to 81 points for correct answers. Each correct answer is 3 points.

Problem #1: Understanding the seller market power: A comparative analysis of a perfectly competitive industry and monopoly using MR=MC rule

Problem #1 includes Questions 1 – 13

Consider an industry characterized by the following demand and supply conditions.
Inverse Demand: P = 72 – 2Q
Marginal Cost (Supply): MC = 4Q
P is in $ per unit, MC is in $ per unit and Q is in units

Assume this **industry has *a perfectly competitive* structure** (questions 1-3).

1. The **marginal revenue function** for this perfectly competitive industry is
- MR = 72 – 4Q
- MR = 72 – 2Q
- MR = 4Q
- MR = 8Q

2. Calculate the profit-maximizing product quantity to produce for this perfectly competitive industry by using **MR=MC rule**
- 12 units
- 9 units
- 24 units
- 14.4 units

3. Calculate the profit-maximizing price to charge for this perfectly competitive industry
- $48 per unit
- $24 per unit
- $12 per unit
- $54 per unit

You continue analyzing the same industry.
Inverse Demand: P = 72 – 2Q
Marginal Cost (Supply): MC = 4Q
P is in $ per unit, MC is in $ per unit and Q is in units

Assume **this industry is *a monopoly (one seller)*** (questions 4-6).

4. The **marginal revenue function** for the monopoly is

- MR = 72 – 2Q
- MR = 4Q
- MR = 8Q
- MR = 72 – 4Q

5. Calculate the profit-maximizing quantity to produce for the monopoly by **using MR=MC rule**

- 9 units
- 12 units
- 24 units
- 14.4 units

6. Calculate the profit-maximizing monopoly price to charge

- $24 per unit
- $36 per unit
- $48 per unit
- $54 per unit

7. Summarize the results of your analysis in a table presented on page 3 of PDF Quiz (you can quickly draw this table on a scratch paper, if you do not have a paper quiz in front of you). **In addition, calculate Marginal Cost and Profit; the latter is a price-cost margin expressed in $ per unit. Evaluate the market effects of monopoly by calculating the differences between the analyzed variables (the last column in the table).**

Use the results reported in the table to answer questions 8 – 13.

To receive points for question 7, confirm the following statement "I have completed this table"

- True
- False

	Monopoly	**Perfectly Competitive Industry**	**Market effects of monopoly:** Difference: Monopoly – PC
Quantity (units)			
Price ($ per unit)			
Marginal Cost ($ per unit)			
Profit: Price-Cost Margin ($ per unit)			

8. Marginal cost for Monopoly is
- $48 per unit
- $36 per unit

9. Marginal cost for a Perfectly Competitive Industry is
- $48 per unit
- $36 per unit

10. Profit for Monopoly is
- $0.00 per unit
- $18.00 per unit

11. Profit for a Perfectly Competitive Industry is
- $0.00 per unit
- $18.00 per unit

12. Assume that the industry evolves from being a perfectly competitive industry (many producers/sellers) to a monopoly (one producer/seller). *Using the producer (monopolist) perspective,* the market effects of the seller market power are

- The monopolist increases the product quantity produced, charges a lower price and earns a zero profit
- The monopolist decreases the product quantity produced, charges a higher price and earns a positive profit

13. Assume that the industry evolves from being a perfectly competitive industry (many producers/sellers) to a monopoly (one producer/seller). *Using the consumers (buyers) perspective,* the market effects of the seller market power are

- Consumers have access to a larger product quantity, and they pay a lower price. They benefit from the seller market power of the monopolist
- Consumers have access to a smaller product quantity, and they pay a higher price. They are overcharged due to the seller market power of the monopolist

Problem #2: Applications of market power in agricultural industries:
Market power in the U.S. potato industry.

Problem #2 includes questions 14 – 21

At the beginning of this century the U.S. potato industry experienced a potato over-supply problem. The industry produced the potato quantity, which exceeded the potato demand. As a result, many potato growers received prices, which were below potato production costs. Also, many potato growers could not sell all potatoes they produced. This adversely affected the profitability of many potato growers: they incurred financial losses, instead of earning profit.

In 2005 the United Potato Growers of America, a national marketing cooperative of potato growers, was organized. At the same time, several regional cooperatives were organized as well. To mitigate the potato over-supply problem and to increase potato prices, these cooperatives developed and implemented the potato supply management program. This program aimed to reduce the potato supply by decreasing the potato area planted each year. The primary expected effect was increasing potato price received by growers. This potato price was expected to be above potato production costs. The actual market and price effects of this program were as follows: the potato area planted decreased, the total potato quantity produced decreased, and potato price received by potato growers increased.

Use this brief industry background to answer all questions included in this problem.

14. The type of market power, which the potato industry (growers) exercises in this example is
- Buyer market power
- Seller market power
- No market power: there are many potato growers in the U.S., the potato industry is a perfectly competitive industry, which does not have any market power

*Use the **perspective of potato growers** to answer questions 15-18.*

15. For potato growers, potatoes are
- input
- output

16. The type of market power described in this example affects potato growers
- revenue
- costs

17. To exercise the type of market power described in this example potato growers
- decrease potato quantity produced, which increases potato price, increases revenue and increases profit
- increase potato quantity produced, which increases potato price, increases revenue and increases profit
- increase potato quantity produced, which decreases potato price, increases revenue and increases profit

18. The type of market power the potato industry exercises in this example
- increases the profit of potato growers and of their industry: potato growers are better off
- decreases the profit of potato growers and of their industry: potato growers are worse off

*Use the **perspective of buyers of fresh potatoes and processed potato products such as French Fries and potato chips (final consumers shopping at the retail level)** to answer questions 19-21.*

19. The type of market power the potato industry exercises in this example affects the final consumers
- expenditures
- income

20. The final consumer is affected by the described type of market power of the potato industry in the following manner
- the potato quantity available to purchase increases, potato prices the consumer pays decrease, his expenditures on potatoes decrease and he has more money left to purchase other food items
- the potato quantity available to purchase decreases, potato prices the consumer pays increase, his expenditures on potatoes increase and he has less money left to purchase other food items
- the potato quantity available to purchase increases, potato prices the consumer pays decrease, his expenditures on potatoes increase and he has less money left to purchase other food items

21. The final consumer is affected by the described type of market power of the potato industry in the following manner
- the consumer pays lower potato prices and has more money left: the consumer is better off
- the consumer pays higher potato prices and has less money left: the consumer is worse off

Problem #3: Output Price Forecast using a Price Flexibility

Problem #3 includes questions 22 – 27

Your **objective** is **to predict potato price** to be received by potato growers during the next marketing season ("future period") by using potato supply and price data for the previous production and marketing season ("past period"). The potato **supply was 400 million cwt** in the past period, and the average **price received by potato growers was $9.00 per cwt**. **Potato supply is projected to increase** during the current production season (mostly due to an increase in potato yield per acre). **The projected potato supply is 460 million cwt (cwt is one hundredweight = 100 pounds).**

The potato **price flexibility** at the farm level is **-1.30**.

Your **objective is to predict changes in potato price** (% change and change in $ per cwt) and **the "new" potato price** (i.e. the potato price for the future period). To complete this analysis, answer a set of questions included in this problem.

RECOMMENDATION: TO SHOW YOUR WORK ON THE PAPER BEFORE SELECTING ANSWERS

22. The change in potato quantity measured in physical units is
- 60 million cwt increase
- 60 million cwt decrease

23. The percentage change in potato quantity is
- 15% decrease
- 13% decrease
- 15% increase
- 13% increase

24. The percentage change in potato price is
- 16.9% increase
- 19.50% decrease
- 16.9% decrease
- 19.50% increase

25. The change in potato price measured in $ per cwt is
- $1.76 per cwt increase
- $1.76 per cwt decrease
- $1.30 per cwt decrease
- $1.30 per cwt increase

26. The "new" potato price measured in $ per cwt is
- $1.30 per cwt
- $10.76 per cwt
- $7.24 per cwt

27. Select an interpretation, which in general is consistent with the results of your analysis
- A decrease in potato supply causes potato price to increase
- An increase in potato price causes potato supply to increase
- A decrease in potato price causes potato supply to increase
- An increase in potato supply causes potato price to increase
- A decrease in potato supply causes potato price to decrease
- An increase in potato supply causes potato price to decrease

28. To get your base points, confirm the following statement "I am a student currently enrolled in AGRB 4560 "Prices" ".
- True
- False

Quiz
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2. Calculate the profit-maximizing product quantity to produce for this perfectly competitive industry by using **MR=MC rule**
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- 9 units
- 24 units
- 14.4 units

3. Calculate the profit-maximizing price to charge for this perfectly competitive industry
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- $24 per unit
- $12 per unit
- $54 per unit

You continue analyzing the same industry.
Inverse Demand: P = 72 – 2Q
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- 12 units
- 24 units
- 14.4 units

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- $36 per unit
- $48 per unit
- **$54 per unit**

7. Summarize the results of your analysis in a table presented on page 3 of PDF Quiz (you can quickly draw this table on a scratch paper, if you do not have a paper quiz in front of you). **In addition, calculate Marginal Cost and Profit; the latter is a price-cost margin expressed in $ per unit. Evaluate the market effects of monopoly by calculating the differences between the analyzed variables (the last column in the table).**

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15. For potato growers, potatoes are
- input
- **output**

16. The type of market power described in this example affects potato growers
- **revenue**
- costs

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*Use the **perspective of buyers of fresh potatoes and processed potato products such as French Fries and potato chips (final consumers shopping at the retail level)** to answer questions 19-21.*

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- An increase in potato supply causes potato price to increase
- A decrease in potato supply causes potato price to decrease
- **An increase in potato supply causes potato price to decrease**

28. To get your base points, confirm the following statement "I am a student currently enrolled in AGRB 4560 "Prices" ".
- **True**
- False

Problem #1

Price Determination in Market Structures with *Seller* Market Power: Theory

1. A market structure (industry), where there is one seller of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

2. A market structure (industry), where there are a few sellers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

3. A market structure (industry), where there are many sellers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

4. A firm (or an industry) with the seller market power has the ability to control (to set) to its advantage (i.e. to increase profit)
a). output quantity and/or output price
b). input quantity and/or input price

5. The seller market power of a firm (or an industry) affects its
a). revenue
b). costs

6. The seller market power of a firm (or an industry) affects
a). demand for its product (output price-quantity relationship)
b). supply of the input (input price-quantity relationship)

7. A logic of the profit-maximizing behavior of a firm (or an industry) with the seller market power is that this firm (or this industry)
a). increases output quantity to increase output price, which increases its revenue and increases its profit
b). decreases input quantity to decrease input price, which decreases its costs and increases its profit
c). decreases output quantity to increase output price, which increases its revenue and increases its profit
d). decreases output quantity to decrease output price, which decreases its costs and increases its profit

Problem #2

Price Determination in Market Structures with *Seller* Market Power: Applications
Market Power in the Supermarket Industry

A large supermarket chain, which owns many supermarkets, sells fluid (beverage) milk to many final consumers (i.e. buyers of fluid milk who purchase milk for personal consumption). **Assume that this large supermarket chain exercises market power, when it sells milk to final consumers.** *Use this brief industry background to answer questions included in this problem.*

1. For this large supermarket chain fluid milk it sells is
a). input
b). output

2. The type of market power the supermarket chain exercises in this example is
a). seller market power
b). buyer market power

3. The market power of the supermarket chain described in this example affects
a). revenue of the supermarket chain
b). cost of the supermarket chain

4. To exercise the market power, the analyzed supermarket chain in this example would
a). decrease fluid milk quantity sold to increase fluid milk price charged, which would increase revenue and profit of the supermarket chain
b). increase fluid milk quantity sold to increase fluid milk price charged, which would increase revenue and profit of the supermarket chain

5. The market power of the supermarket chain
a). increases its profit: the supermarket chain is better off
b). decreases its profit: the supermarket chain is worse off

6. The effects of the supermarket market power on consumers purchasing fluid milk in the supermarkets owned by the supermarket chain are
a). A larger quantity of fluid milk is available in the supermarkets, and consumers pay lower fluid milk prices
b). A larger quantity of fluid milk is available in the supermarkets, and consumers pay higher fluid milk prices
c). A smaller quantity of fluid milk is available in the supermarkets, and consumers pay higher fluid milk prices
d). A smaller quantity of fluid milk is available in the supermarkets, and consumers pay lower fluid milk prices

7. The final consumer is affected by the market power of the supermarket chain in the following manner
a). the consumer pays a higher fluid milk price and has less money left: the consumer is worse off
b). the consumer pays a lower fluid milk price and has more money left: the consumer is better off

Problem #1

Price Determination in Market Structures with *Seller* Market Power: Theory

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a). a perfectly competitive industry
b). monopoly
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d). monopsony
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a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
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4. A firm (or an industry) with the seller market power has the ability to control (to set) to its advantage (i.e. to increase profit)
a). output quantity and/or output price
b). input quantity and/or input price

5. The seller market power of a firm (or an industry) affects its
a). revenue
b). costs

6. The seller market power of a firm (or an industry) affects
a). demand for its product (output price-quantity relationship)
b). supply of the input (input price-quantity relationship)

7. A logic of the profit-maximizing behavior of a firm (or an industry) with the seller market power is that this firm (or this industry)
a). increases output quantity to increase output price, which increases its revenue and increases its profit
b). decreases input quantity to decrease input price, which decreases its costs and increases its profit
c). decreases output quantity to increase output price, which increases its revenue and increases its profit
d). decreases output quantity to decrease output price, which decreases its costs and increases its profit

Problem #2

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Market Power in the Supermarket Industry

A large supermarket chain, which owns many supermarkets, sells fluid (beverage) milk to many final consumers (i.e. buyers of fluid milk who purchase milk for personal consumption). **Assume that this large supermarket chain exercises market power, when it sells milk to final consumers.** *Use this brief industry background to answer questions included in this problem.*

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2. The type of market power the supermarket chain exercises in this example is
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Quiz
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Quiz points (maximum 100 points): 19 base points + up to 81 points for correct answers. Each correct answer is 3 points.

Problem #1 Understanding the *buyer* market power: A comparative analysis of a perfectly competitive industry and monopsony using appropriate versions of MR=MC rule

Problem #1 includes questions 1-11

Consider an industry characterized by the following demand and supply conditions.
Inverse Demand: P = 72 – 2Q;
Inverse Supply: W = 2Q.
P is output price ($ per unit), W input price ($ per unit); Q is input (and output) quantity (units). Production technology assumption: 1 unit of input is required to produce 1 unit of output (this is the reason we use the same Q to denote input quantity and output quantity).

Assume this **industry has *a perfectly competitive* structure.**

1. The **marginal cost function** for this perfectly competitive industry is
- MC = 72 – 2Q
- MC = 2Q
- MC = 4Q
- MC = 72 – 4Q

2. Calculate the profit-maximizing *input* quantity to purchase for this **perfectly competitive industry** by using appropriate version of **MR=MC rule**
- 18 units
- 12 units
- 24 units

3. Calculate the profit-maximizing *input* price to pay for this **perfectly competitive industry**
- $36 per unit
- $24 per unit
- $54 per unit

You continue analyzing the industry with the same demand and supply conditions.
Inverse Demand: P = 72 – 2Q;
Inverse Supply: W = 2Q.

Assume **this industry is *a monopsony (one buyer of the input).***

4. The **marginal expenditures function** for the **monopsony** is

- ME = 72 – 2Q
- ME = 2Q
- ME = 4Q
- ME = 72 – 4Q

5. Calculate the profit-maximizing *input* quantity to purchase for the **monopsony** by **using appropriate version of MR=MC rule.** *Assume the output market is perfectly competitive, and buyer market power is on the input market.*

- 18 units
- 24 units
- 12 units

6. Calculate the profit-maximizing *input* price the monopsonist pays

- $36 per unit
- $24 per unit
- $54 per unit

7. Summarize the results of your analysis in a table presented on Page 3 of PDF Quiz (you can quickly draw this table on a scratch paper, if you do not have a paper quiz in front of you). **In addition, calculate a profit measure: Mark down in $ per unit. Evaluate the market effects of monopsony by calculating the differences between the analyzed variables (the last column in the table).**

Use the results reported in the table to answer questions 8 – 11.

To receive points for question 7, confirm the following statement "I have completed this table"

- True
- False

	Monopsony	**Perfect Competition**	**Market effects of monopsony** Difference: Monopsony – PC
Input Quantity to purchase: Q (units)			
Input price to pay: W ($ per unit)			
Mark down (i.e. PROFIT in $ per unit: the input price *decrease*) *the formulas are provided*	**Mark-Down = P – Wm** Assume P = $36/unit Use your W for monopsony reported above **Mark Down =**	**Mark-Down = P – Wpc** Assume P = $36/unit Use your W for P.C. reported above **Mark Down =**	

8. Calculate the Mark-Down for monopsony. *Mark-Down = P – Wm.*
Assume P = $36 per unit. Use W for monopsony you calculated earlier.

- $12 per unit
- $0 per unit

9. Calculate the Mark-Down for a perfectly competitive industry. *Mark-Down = P – Wpc.*
Assume P = $36/unit. Use W for a perfectly competitive industry you calculated earlier.

- $12 per unit
- $0 per unit

10. Assume that the industry evolves from being a perfectly competitive industry (many producers, who are buyers of the input) to a monopsony (one producer, who is the only buyer of the input). *Using the buyer/monopsonist perspective*, the market effects of the *buyer* market power (as compared to a perfectly competitive industry) are

- The monopsonist increases the product (input) quantity he purchases, pays a higher price and earns a zero profit
- The monopsonist decreases the product (input) quantity he purchases, pays a lower price and earns a positive profit

11. Assume that the industry evolves from being a perfectly competitive industry (many producers, who are buyers of the input) to a monopsony (one producer, who is the only buyer of the input). *Using the producers/sellers perspective*, the market effects of the *buyer* market power (as compared to a perfectly competitive industry) are

- Producers sell a larger product quantity, and they receive a higher price. They benefit from the buyer market power of the monopsonist
- Producers sell a smaller product quantity, and they receive a lower price. They are underpaid due to the buyer market power of the monopsonist

Problem #2 Applications of market power in agricultural industries:
Market power in the U.S. beef industry.

Problem #2 includes questions 12 – 21

There is **a relatively small number of large firms involved in beef processing in the U.S.** These beef processors purchase cattle from many cattle producers (farmers), slaughter cattle and process them into various beef products, which are sold to wholesalers, retailers and eventually to final consumers. **This small group of beef processors has a potential to exercise market power, when they purchase cattle from farmers.**

Use this brief industry background to answer all questions included in this problem.

12. The **type of market power of beef processors** (beef processors vs farmers) described in this example is

- Buyer market power
- Seller market power
- No market power: there are many farmers raising cattle in the U.S., the industry is a perfectly competitive industry, which does not have any market power

13. As described in this example, the **U.S. beef industry** (beef processors vs farmers) has the following **type of market structure**

- perfect competition
- monopoly
- monopsony
- oligopoly
- oligopsony

*Use the **perspective of a beef processor** to answer questions 14-17.*

14. For the beef processor, cattle are

- output
- input

15. A described in this example type of market power of the beef processor affects his

- revenue
- costs

16. To exercise the type of market power described in this example, the beef processor is going

- to increase cattle quantity he purchases to increase cattle price he pays, which would decrease his costs and increase his profit
- to decrease cattle quantity he purchases to decrease cattle price he pays, which would decrease his costs and increase his profit
- to increase cattle quantity he purchases to increase cattle price he pays, which would decrease his costs and would decrease his profit

17. The type of market power the beef processor has in this example
- decreases his profit: the beef processor is worse off
- increases his profit: the beef processor is better off

*Use the **perspective of a farmer raising and selling cattle to the beef processor** to answer questions 18-21.*

18. For the farmer, cattle are
- output
- input

19. The type of market power, which the beef processor has in this example, affects the farmer's
- revenue
- costs

20. The farmer is affected by the market power of the beef processor in the following manner
- cattle quantity the farmer sells decreases and cattle price the farmer receives decreases, which decreases the farmer's revenue and decreases the farmer's profit
- cattle quantity the farmer sells increases and cattle price the farmer receives increases, which increases the farmer's revenue and increases the farmer's profit
- cattle quantity the farmer sells decreases and cattle price the farmer receives increases, which increases the farmer's revenue and increases the farmer's profit

21. The farmer is affected by the market power of the beef processor in the following manner
- his profit decreases: the farmer is worse off
- his profit increases: the farmer is better off

Problem #3 Input Price Forecast using an Inverse Supply Elasticity

Problem #3 includes questions 22 – 27

There is a small number of large beef processors purchasing cattle from cattle producers (farmers) in the U.S. The experts believe that these beef processors exercise buyer market power, when they purchase cattle from farmers. In particular, it is argued that over the last few years the beef processors have been decreasing the quantity of cattle purchased, which decreased cattle price they pay to farmers. Consider the following two market scenarios.

Market Scenario #1 (Last Year):
The **quantity** of cattle beef processors purchased is **26 billion pounds**
The **price** of cattle beef processors paid is **$3.30 per pound**

Market Scenario #2 (This Year):
It is projected that the **quantity** of cattle beef processors will purchase is **24 billion pounds**
Your objective is to predict cattle price beef processors will pay this year.
Inverse supply elasticity for cattle is 2.00

To predict cattle price, calculate changes in cattle price (% change and change in $ per pound) between the two market scenarios and cattle price in the current year. Answer a set of questions presented below to complete the analysis.

SHOW YOUR WORK ON PAPER BEFORE SELECTING ANSWERS

22. The change in cattle quantity measured in physical units is
- 2 billion pounds increase
- 2 billion pounds decrease

23. The percentage change in cattle quantity is
- 7.7% increase
- 7.7% decrease
- 8.3% increase
- 8.3% decrease

24. The percentage change in cattle price is
- 16.6% increase
- 16.6% decrease
- 15.4% decrease
- 15.4% increase

25. The change in cattle price measured in $ per pound is
- $0.55 per pound increase
- $0.55 per pound decrease
- $0.51 per pound decrease
- $0.51 per pound increase

26. The predicted (current year) cattle price measured in $ per pound is
- $2.75 per pound
- $2.79 per pound
- $3.81 per pound
- $3.85 per pound

27. Select an interpretation, which in general is consistent with the results of your analysis
- A decrease in cattle quantity purchased causes cattle price to increase
- A decrease in cattle price causes cattle quantity purchased to increase
- An increase in cattle quantity purchased causes cattle price to increase
- A decrease in cattle quantity purchased causes cattle price to decrease
- An increase in cattle quantity purchased causes cattle price to decrease

28. To get your base points, confirm the following statement “I am a student currently enrolled in AGRB 4560 “Prices” ”.
- True
- False

Quiz
Price Determination in Market Structures with *Buyer* Market Power: Theory and Applications

The Quiz must be submitted on Canvas. It is recommended to print out the Quiz PDF file available on Canvas in folder "Quizzes" and complete this quiz on paper first. However, you can complete this quiz on Canvas without having a paper quiz in front of you. The correct answers will be available in your feedback on Canvas later today. Canvas shuffles answers. You do not have to e-mail the paper quiz to the instructor. This quiz includes 27 questions.

Quiz points (maximum 100 points): 19 base points + up to 81 points for correct answers. Each correct answer is 3 points.

Problem #1 Understanding the *buyer* market power: A comparative analysis of a perfectly competitive industry and monopsony using appropriate versions of MR=MC rule

Problem #1 includes questions 1-11

Consider an industry characterized by the following demand and supply conditions.
Inverse Demand: P = 72 – 2Q;
Inverse Supply: W = 2Q.

P is output price ($ per unit), W input price ($ per unit); Q is input (and output) quantity (units). Production technology assumption: 1 unit of input is required to produce 1 unit of output (this is the reason we use the same Q to denote input quantity and output quantity).

Assume this **industry has *a perfectly competitive* structure.**

1. The **marginal cost function** for this perfectly competitive industry is
- MC = 72 – 2Q
- **MC = 2Q**
- MC = 4Q
- MC = 72 – 4Q

2. Calculate the profit-maximizing *input* quantity to purchase for this **perfectly competitive industry** by using appropriate version of **MR=MC rule**
- **18 units**
- 12 units
- 24 units

3. Calculate the profit-maximizing *input* price to pay for this **perfectly competitive industry**
- **$36 per unit**
- $24 per unit
- $54 per unit

You continue analyzing the industry with the same demand and supply conditions.
Inverse Demand: P = 72 – 2Q;
Inverse Supply: W = 2Q.

Assume **this industry is *a monopsony (one buyer of the input).***

4. The **marginal expenditures function** for the **monopsony** is

- ME = 72 – 2Q
- ME = 2Q
- **ME = 4Q**
- ME = 72 – 4Q

5. Calculate the profit-maximizing *input* quantity to purchase for the **monopsony** by **using appropriate version of MR=MC rule.** *Assume the output market is perfectly competitive, and buyer market power is on the input market.*

- 18 units
- 24 units
- **12 units**

6. Calculate the profit-maximizing *input* price the monopsonist pays

- $36 per unit
- **$24 per unit**
- $54 per unit

7. Summarize the results of your analysis in a table presented on Page 3 of PDF Quiz (you can quickly draw this table on a scratch paper, if you do not have a paper quiz in front of you). **In addition, calculate a profit measure: Mark down in $ per unit. Evaluate the market effects of monopsony by calculating the differences between the analyzed variables (the last column in the table).**

Use the results reported in the table to answer questions 8 – 11.

To receive points for question 7, confirm the following statement "I have completed this table"

- **True**
- False

	Monopsony	**Perfect Competition**	**Market effects of monopsony** Difference: Monopsony – PC
Input Quantity to purchase: Q (units)			
Input price to pay: W ($ per unit)			
Mark down (i.e. PROFIT in $ per unit: the input price *decrease*) *the formulas are provided*	**Mark-Down = P – Wm** Assume P = $36/unit Use your W for monopsony reported above **Mark Down =**	**Mark-Down = P – Wpc** Assume P = $36/unit Use your W for P.C. reported above **Mark Down =**	

8. Calculate the Mark-Down for monopsony. *Mark-Down = P – Wm.*
Assume P = $36 per unit. Use W for monopsony you calculated earlier.

- **$12 per unit**
- $0 per unit

9. Calculate the Mark-Down for a perfectly competitive industry. *Mark-Down = P – Wpc.*
Assume P = $36/unit. Use W for a perfectly competitive industry you calculated earlier.

- $12 per unit
- **$0 per unit**

10. Assume that the industry evolves from being a perfectly competitive industry (many producers, who are buyers of the input) to a monopsony (one producer, who is the only buyer of the input). *Using the buyer/monopsonist perspective*, the market effects of the *buyer* market power (as compared to a perfectly competitive industry) are

- The monopsonist increases the product (input) quantity he purchases, pays a higher price and earns a zero profit
- **The monopsonist decreases the product (input) quantity he purchases, pays a lower price and earns a positive profit**

11. Assume that the industry evolves from being a perfectly competitive industry (many producers, who are buyers of the input) to a monopsony (one producer, who is the only buyer of the input). *Using the producers/sellers perspective*, the market effects of the *buyer* market power (as compared to a perfectly competitive industry) are

- Producers sell a larger product quantity, and they receive a higher price. They benefit from the buyer market power of the monopsonist
- **Producers sell a smaller product quantity, and they receive a lower price. They are underpaid due to the buyer market power of the monopsonist**

Problem #2 Applications of market power in agricultural industries:
Market power in the U.S. beef industry.

Problem #2 includes questions 12 – 21

There is **a relatively small number of large firms involved in beef processing in the U.S.** These beef processors purchase cattle from many cattle producers (farmers), slaughter cattle and process them into various beef products, which are sold to wholesalers, retailers and eventually to final consumers. **This small group of beef processors has a potential to exercise market power, when they purchase cattle from farmers.**

Use this brief industry background to answer all questions included in this problem.

12. The **type of market power of beef processors** (beef processors vs farmers) described in this example is

- **Buyer market power**
- Seller market power
- No market power: there are many farmers raising cattle in the U.S., the industry is a perfectly competitive industry, which does not have any market power

13. As described in this example, the **U.S. beef industry** (beef processors vs farmers) has the following **type of market structure**

- perfect competition
- monopoly
- monopsony
- oligopoly
- **oligopsony**

*Use the **perspective of a beef processor** to answer questions 14-17.*

14. For the beef processor, cattle are

- output
- **input**

15. A described in this example type of market power of the beef processor affects his

- revenue
- **costs**

16. To exercise the type of market power described in this example, the beef processor is going

- to increase cattle quantity he purchases to increase cattle price he pays, which would decrease his costs and increase his profit
- **to decrease cattle quantity he purchases to decrease cattle price he pays, which would decrease his costs and increase his profit**
- to increase cattle quantity he purchases to increase cattle price he pays, which would decrease his costs and would decrease his profit

17. The type of market power the beef processor has in this example
- decreases his profit: the beef processor is worse off
- **increases his profit: the beef processor is better off**

*Use the **perspective of a farmer raising and selling cattle to the beef processor** to answer questions 18-21.*

18. For the farmer, cattle are
- **output**
- input

19. The type of market power, which the beef processor has in this example, affects the farmer's
- **revenue**
- costs

20. The farmer is affected by the market power of the beef processor in the following manner
- **cattle quantity the farmer sells decreases and cattle price the farmer receives decreases, which decreases the farmer's revenue and decreases the farmer's profit**
- cattle quantity the farmer sells increases and cattle price the farmer receives increases, which increases the farmer's revenue and increases the farmer's profit
- cattle quantity the farmer sells decreases and cattle price the farmer receives increases, which increases the farmer's revenue and increases the farmer's profit

21. The farmer is affected by the market power of the beef processor in the following manner
- **his profit decreases: the farmer is worse off**
- his profit increases: the farmer is better off

Problem #3 Input Price Forecast using an Inverse Supply Elasticity

Problem #3 includes questions 22 – 27

There is a small number of large beef processors purchasing cattle from cattle producers (farmers) in the U.S. The experts believe that these beef processors exercise buyer market power, when they purchase cattle from farmers. In particular, it is argued that over the last few years the beef processors have been decreasing the quantity of cattle purchased, which decreased cattle price they pay to farmers. Consider the following to market scenarios.

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Market Scenario #2 (This Year):
It is projected that the **quantity** of cattle beef processors will purchase is **24 billion pounds**
Your objective is to predict cattle price beef processors will pay this year.
Inverse supply elasticity for cattle is 2.00

To predict cattle price, calculate changes in cattle price (% change and change in $ per pound) between the two market scenarios and cattle price in the current year. Answer a set of questions presented below to complete the analysis.

SHOW YOUR WORK ON PAPER BEFORE SELECTING ANSWERS

22. The change in cattle quantity measured in physical units is
- 2 billion pounds increase
- **2 billion pounds decrease**

23. The percentage change in cattle quantity is
- 7.7% increase
- **7.7% decrease**
- 8.3% increase
- 8.3% decrease

24. The percentage change in cattle price is
- 16.6% increase
- 16.6% decrease
- **15.4% decrease**
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25. The change in cattle price measured in $ per pound is
- $0.55 per pound increase
- $0.55 per pound decrease
- **$0.51 per pound decrease**
- $0.51 per pound increase

26. The predicted (current year) cattle price measured in $ per pound is
- $2.75 per pound
- **$2.79 per pound**
- $3.81 per pound
- $3.85 per pound

27. Select an interpretation, which in general is consistent with the results of your analysis
- A decrease in cattle quantity purchased causes cattle price to increase
- A decrease in cattle price causes cattle quantity purchased to increase
- An increase in cattle quantity purchased causes cattle price to increase
- **A decrease in cattle quantity purchased causes cattle price to decrease**
- An increase in cattle quantity purchased causes cattle price to decrease

28. To get your base points, confirm the following statement “I am a student currently enrolled in AGRB 4560 “Prices” ”.
- **True**
- False

Problem #1

Price Determination in Market Structures with *Buyer* Market Power: Theory

1. A market structure (industry), where there is one buyer of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

2. A market structure (industry), where there are a few buyers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

3. A market structure (industry), where there are many buyers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

4. A firm (or an industry) with the buyer market power has the ability to control (to set) to its advantage (i.e. to increase profit)
a). output quantity and/or output price
b). input quantity and/or input price

5. The buyer market power of a firm (or an industry) affects its
a). revenue
b). costs

6. The buyer market power of a firm (or an industry) affects
a). demand for its product (output price-quantity relationship)
b). supply of the input (input price-quantity relationship)

7. A logic of the profit-maximizing behavior of a firm (or an industry) with the buyer market power is that this firm (or this industry)
a). increases input quantity to increase input price, which increases its costs and decreases its profit
b). decreases input quantity to decrease input price, which decreases its costs and increases its profit
c). decreases output quantity to increase output price, which increases its revenue and increases its profit
d). decreases input quantity to increase input price, which decreases its costs and increases its profit

Problem #2

Price Determination in Market Structures with *Buyer* Market Power: Applications
Market power in the U.S. fluid milk industry

There is a relatively **small number of large firms involved in fluid milk processing** in the U.S. These fluid milk processors purchase raw milk from numerous dairy farmers and process raw milk into various fluid milk products (whole milk, reduced-fat milk, skim milk, chocolate milk, half-and-half, etc,), which are sold to retailers and eventually to final consumers. **These fluid milk processors, as a group, have a potential to exercise market power, when they purchase raw milk from dairy farmers.** *Use this brief industry background to answer a set of questions included in this problem.*

1. The **type of market structure** described in this example (fluid milk processors vs dairy farmers) is
a). monopoly
b). monopsony
c). oligopoly
d). oligopsony
e). perfect competition

2. The **type of market power** the fluid milk processors exercise in this example (fluid milk processors vs dairy farmers) is
a). seller market power
b). buyer market power
c). no market power: there are many dairy farmers, the industry is a perfectly competitive industry

*Use the **perspective of a fluid milk processor** to answer questions 3 – 6.*

3. For the fluid milk processor, raw milk is
a). output
b). input

4. The type of market power of the fluid milk processor described in this example affects his
a). revenue
b) costs

5. To exercise the type of market power described in this example, the fluid milk processor is going
a). to increase raw milk quantity purchased to decrease raw milk price he pays, which decreases his costs and increases his profit
b). to decrease raw milk quantity purchased to decrease raw milk price he pays, which decreases his costs and increases his profit
c). to decrease raw milk quantity purchased to decrease raw milk price he pays, which decreases his revenue and decreases his profit

6. The type of market power of the fluid milk processor described in this example
a). increases his profit: the fluid milk processor is better off
b). decreases his profit: the fluid milk processor is worse off

*Use the **perspective of a dairy farmer** to answer questions 7 - 10.*

7. For a dairy farmer, raw milk is
a). output
b). input

8. The type of market power of the fluid milk processor described in this example affects the dairy farmer's
a). revenue
b) costs

9. The dairy farmer is affected by the market power of the fluid milk processor in the following manner
a). raw milk quantity the farmer sells increases, raw milk price the farmer receives increases, his revenue increases and his profit increases
b). raw milk quantity the farmer sells decreases, raw milk price the farmer receives decreases, his revenue decreases and his profit decreases
c). raw milk quantity the farmer sells decreases, raw milk price the farmer pays increases, his revenue increase and his profit increases

10. The dairy farmer is affected by the market power of the fluid milk processor in the following manner
a). his profit increases: the dairy farmer is better off
b). his profit decreases: the dairy farmer is worse off

Problem #1

Price Determination in Market Structures with *Buyer* Market Power: Theory

1. A market structure (industry), where there is one buyer of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

2. A market structure (industry), where there are a few buyers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

3. A market structure (industry), where there are many buyers of the product, is
a). a perfectly competitive industry
b). monopoly
c). oligopoly
d). monopsony
e). oligopsony

4. A firm (or an industry) with the buyer market power has the ability to control (to set) to its advantage (i.e. to increase profit)
a). output quantity and/or output price
b). input quantity and/or input price

5. The buyer market power of a firm (or an industry) affects its
a). revenue
b). costs

6. The buyer market power of a firm (or an industry) affects
a). demand for its product (output price-quantity relationship)
b). supply of the input (input price-quantity relationship)

7. A logic of the profit-maximizing behavior of a firm (or an industry) with the buyer market power is that this firm (or this industry)
a). increases input quantity to increase input price, which increases its costs and decreases its profit
b). decreases input quantity to decrease input price, which decreases its costs and increases its profit
c). decreases output quantity to increase output price, which increases its revenue and increases its profit
d). decreases input quantity to increase input price, which decreases its costs and increases its profit

Problem #2

Price Determination in Market Structures with *Buyer* Market Power: Applications
Market power in the U.S. fluid milk industry

There is a relatively **small number of large firms involved in fluid milk processing** in the U.S. These fluid milk processors purchase raw milk from numerous dairy farmers and process raw milk into various fluid milk products (whole milk, reduced-fat milk, skim milk, chocolate milk, half-and-half, etc,), which are sold to retailers and eventually to final consumers. **These fluid milk processors, as a group, have a potential to exercise market power, when they purchase raw milk from dairy farmers.** *Use this brief industry background to answer a set of questions included in this problem.*

1. The **type of market structure** described in this example (fluid milk processors vs dairy farmers) is
a). monopoly
b). monopsony
c). oligopoly
d). oligopsony
e). perfect competition

2. The **type of market power** the fluid milk processors exercise in this example (fluid milk processors vs dairy farmers) is
a). seller market power
b). buyer market power
c). no market power: there are many dairy farmers, the industry is a perfectly competitive industry

*Use the **perspective of a fluid milk processor** to answer questions 3 – 6.*

3. For the fluid milk processor, raw milk is
a). output
b). input

4. The type of market power of the fluid milk processor described in this example affects his
a). revenue
b) costs

5. To exercise the type of market power described in this example, the fluid milk processor is going
a). to increase raw milk quantity purchased to decrease raw milk price he pays, which decreases his costs and increases his profit
b). to decrease raw milk quantity purchased to decrease raw milk price he pays, which decreases his costs and increases his profit
c). to decrease raw milk quantity purchased to decrease raw milk price he pays, which decreases his revenue and decreases his profit

6. The type of market power of the fluid milk processor described in this example
a). increases his profit: the fluid milk processor is better off
b). decreases his profit: the fluid milk processor is worse off

*Use the **perspective of a dairy farmer** to answer questions 7 - 10.*

7. For a dairy farmer, raw milk is
a). output
b). input

8. The type of market power of the fluid milk processor described in this example affects the dairy farmer's
a). revenue
b) costs

9. The dairy farmer is affected by the market power of the fluid milk processor in the following manner
a). raw milk quantity the farmer sells increases, raw milk price the farmer receives increases, his revenue increases and his profit increases
b). raw milk quantity the farmer sells decreases, raw milk price the farmer receives decreases, his revenue decreases and his profit decreases
c). raw milk quantity the farmer sells decreases, raw milk price the farmer pays increases, his revenue increase and his profit increases

10. The dairy farmer is affected by the market power of the fluid milk processor in the following manner
a). his profit increases: the dairy farmer is better off
b). his profit decreases: the dairy farmer is worse off