23-01_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	Total
Points:	12	8	24	20	10	16	90
Score:							

1. (12 points) **[Perfect markets]** For the "magic of the price system" to work, the market must be characterized by perfect competition. Describe the conditions for perfectly competitive markets.

2. (8 points) **[Comparative advantage]** Suppose that there are only two countries, A and B. Both countries are equally endowed with the single factor of production, labor, which can be used to produce either good y or good x. The following table shows the input coefficients a for both countries, i.e., the units of labor needed to produce one unit of good y or good x.

Good:	y	x
Country A	48	36
Country B	46	32

   (a) Which country has an absolute advantage in producing good y and x, respectively?

   (b) With reference to comparative advantage, explain the trade structure of these two countries.

3. **[Measuring the economy]**

   (a) (12 points) Discuss why the GDP per capita is only an imperfect measure for welfare and well-being. Moreover, discuss why it is so difficult to use the the GDP in cross-country comparisons and for long time-series.

   (b) (12 points) Consider the following table of price and quantities produced for a small economy. Assume that only four goods (A, B, C, D) have been produced in the economy.

Year	A		B		C		D	
	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
2019	€1	2000	€2	100	10	10	3	30
2020	€1	1000	€4	200	20	1	2	40

   a) Calculate the nominal GDP for 2019 and 2020.

   b) Calculate the percentage change in nominal GDP between 2019 and 2020.

   c) Calculate the consumer price index (CPI) in 2019 and 2020, using 2019 as the base year.

   d) What was the inflation rate in this economy between 2019 and 2020? Express your answer as a percentage.

4. **[Supply and demand]**

   (a) (10 points) Suppose new research shows that good X is bad for people's health. Using price-quantity diagrams, discuss and illustrate the changes in the markets of good X, good Y, and good Z given the following:

   - Good X, Y, and Z are normal goods.

Please go on to the next page...

- Good X and Y are **perfect** substitutes.
- Good X and Z are complements.
- Good Y and Z are complements.

(b) (10 points) Suppose that an exogenous economic shock (like a war) causes the production of good T becomes more time consuming and expensive. Using price-quantity diagrams, discuss and illustrate the changes in the markets for good T, good K, and good F given the following:

- Good T, K, and F are normal goods.
- Good T and K are substitutes.
- Good T and F are complements.

5. (10 points) **[International investment]**

Suppose you have €1000 this year that you want to invest for one year and then buy something with the €.

a) Calculate the return on an investment in the United States of America or the European Union, given the following conditions:

- The annual interest rate in Europe is 1%.
- The annual interest rate in the U.S.A. is 2%.
- \$1.10 can be converted to €1 this year.
- You expect that €1 can be converted to \$1.05 next year.
- Moreover, you expect no inflation in Germany and the U.S.

b) Discuss whether you expect the Euro to appreciate or to depreciate.

6. (16 points) **[Terms]**

Explain the meaning of the following terms and phrases:

a) opportunity costs

b) choices are made at the margin

c) inferior goods

d) indifference curve

e) deadweight loss

End of exam

23-04_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	Total
Points:	12	9	35	24	10	90
Score:						

1. (12 points) **[Perfect markets]** For the "magic of the price system" to work, the market must be characterized by perfect competition. Describe the conditions for perfectly competitive markets.

2. (9 points) **[Comparative advantage]**

   Suppose there are two countries, A and B, and two goods, X and Y. The production of each good requires only one input, labor. The following table shows the number of units of labor required to produce one unit of each good in each country:

	Good X	Good Y
Country A	5 labor units	2 labor units
Country B	6 labor units	3 labor units

   (a) Which country has an absolute advantage in producing good X and Y, respectively?

   (b) Country B exports good X to country A and country B exports good Y to country A. Explain that trade pattern in detail using the Ricaridan theory and opportunity costs.

3. **[Various]**

   (a) (5 points) Explain what TANSTAAFL stands for and what economists aim to describe with it.

   (b) (5 points) Explain briefly how Richard Feynman describes the scientific method.

   (c) (5 points) Explain the difference of a positive and a normative statement.

   (d) (5 points) Explain briefly why economists disagree.

   (e) (5 points) The GDP is often used to indicate living standards. Discuss briefly alternative measures that can be used to evaluate the average living standards of people in a nation.

   (f) (5 points) Provide an explanation of the income effect and the substitution effect and their typical implications in markets.

   (g) (5 points) Provide an explanation of the *simple rule for r* in international economics.

4. **[Measuring the economy]**

   (a) (12 points) Provide an explanation of GDP, including how it is measured. Additionally, discuss what GDP excludes from its calculation that would be valuable to measure.

   (b) (12 points) Consider the following table of price and quantities produced for a small economy. Assume that only four goods (A, B, C) have been produced in the economy. B is an intermediate good that is used in the production of good C.

Please go on to the next page...

Year	A		B		C	
	Price	Quantity	Price	Quantity	Price	Quantity
2019	€1	2000	€2	100	€10	10
2020	€1	1600	€4	200	€12	20

a) Calculate the nominal GDP for 2019 and 2020.

b) Calculate the percentage change in nominal GDP between 2019 and 2020.

c) Calculate the consumer price index (CPI) in 2019 and 2020, using 2019 as the base year.

d) Calculate the real GDP for 2019 and 2020.

5. (10 points) **[International investment]**

Suppose you have €1000 this year that you want to invest for one year and then buy something with the €.

a) Calculate the return on an investment in the United States of America or the European Union, given the following conditions:

- The annual interest rate in Europe is 5%.
- The annual interest rate in the U.S.A. is 8%.
- $1.10 can be converted to €1 this year.
- You expect that €1 can be converted to $1.20 next year.
- Moreover, you expect no inflation in Germany and the U.S.

b) Discuss whether you expect the Euro to appreciate or to depreciate.

End of exam

23-07_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	Total
Points:	28	18	34	10	90
Score:					

1. **[Perfect markets]**

   (a) (6 points) Explain what Adam Smith meant when he spoke of the *"invisible hand"*.

   (b) (12 points) For the "magic of the price system" to work, the market must be characterized by perfect competition. Describe the conditions for perfectly competitive markets.

   (c) (5 points) Explain what TANSTAAFL stands for and what economists aim to describe with it.

   (d) (5 points) Discuss what is meant when economist speak of a rational decision.

2. **[Ricardian model]**

   (a) (8 points) Assume that only two countries, A and B, exist. Both countries are equally endowed with labor which is the only production factor. Both countries can produce either good y or good x. The table below gives the input coefficients, a, for both countries, i.e., the units of labor needed to produce one unit of good y and good x, respectively. Assume that both countries have 12 units of labor available.

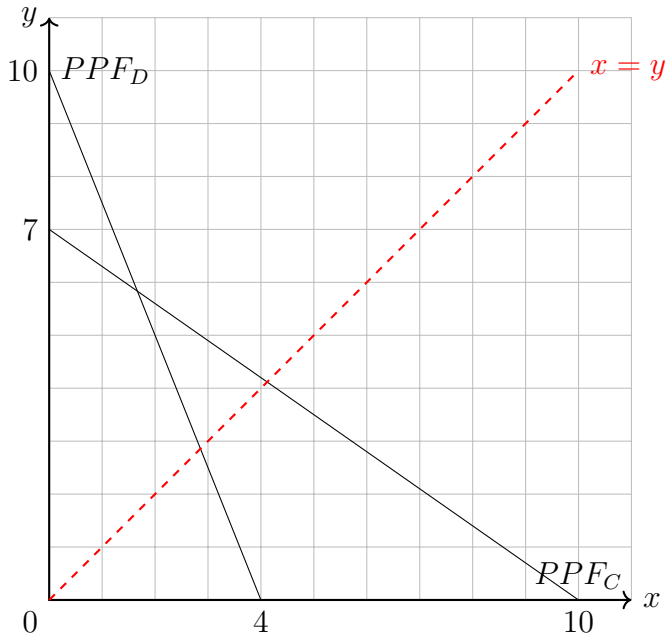
	Countries	
	A	B
Good y	24	25
Good x	12	13

   i) Name the country with an **absolute** advantage in good y and good x, respectively.

   ii) Name the country with a **comparative** advantage in good y and good x.

   (b) (10 points) Assume that only two countries, C and D, exist. Both countries are equally endowed with labor which is the only production factor. Both countries can produce either good y or good x. The figure below gives the production possibility frontier curves (PPF) for both countries C and D. Assume further that the two goods are perfect substitutes, i.e., they needed to be consumed in a fixed ration of 1:1.

Please go on to the next page...



i) Name the country with an **absolute** advantage in good y and good x, respectively.

ii) Name the country with a **comparative** advantage in good y and good x.

iii) Discuss how many of each good x and y each country is producing, exporting, and importing when trade is allowed and no transportation costs exist.

3. **[Measuring the economy]**

(a) (12 points) Provide an explanation of GDP, including how it is measured. Additionally, discuss what GDP excludes from its calculation that would be valuable to measure.

(b) (12 points) Consider the following table of price and quantities produced for a small economy. Assume that only four goods (A, B, C) have been produced in the economy. B is an intermediate good that is used in the production of good C.

Year	A		B		C	
	Price	Quantity	Price	Quantity	Price	Quantity
2020	€1	2000	€2	100	€10	10
2021	€1	1800	€3	50	€10	20

a) Calculate the nominal GDP for 2020 and 2021.

b) Calculate the percentage change in nominal GDP between 2020 and 2021.

c) Calculate the consumer price index (CPI) in 2020 and 2021, using 2020 as the base year.

d) Calculate the real GDP for 2020 and 2021.

(c) (10 points) The consumer price index (CPI) is an accurate measure of the selected goods that aim to be a representative bundle of goods, but it is not a perfect measure of the cost of living. Why? Explain briefly the three sources of bias which we discussed in class.

Please go on to the next page...

4. (10 points) **[International investment]**

   Suppose you have €100 this year that you want to invest for one year and then buy something with the €.

   Calculate the return on an investment in the United States of America and the European Union, given the following conditions:

   - The annual interest rate in Europe is 10%.
   - The annual interest rate in the U.S.A. is 20%.
   - $1 can be converted to €1 this year.
   - You expect that €1 can be converted to $0.80 next year.
   - Moreover, you expect no inflation in Germany and the U.S.

End of exam

23-11_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	7	8	9	10	Total
Points:	15	9	6	6	6	10	12	10	10	6	90
Score:											

1. (15 points) **[Perfect markets]** Describe the 7 conditions for perfectly competitive markets that we have discussed in the lecture.

2. (9 points) **[Unemployment]** There are several rational explanations why wages are downward rigid and remain above the market clearing level. Explain briefly three of the sources we discussed in class.

Please go on to the next page...

3. (6 points) **[Introduction]** Please complete the sentences:

   - The scope of economics can be explained by asking: How do choices end up determining...

     _____

     ...goods and services get produced?

   - A **positive statement** attempts to describe the world as it is and it can be...

     _____

     ...by checking it against facts.

   - A **normative statement** claims how the world should be and cannot be...

     _____.

4. (6 points) **[Ricardian trade theory]** Suppose that there are only two countries, A and B. Both countries are equally endowed with the single factor of production, labor, which can be used to produce either good y or good x. The following table shows the input coefficients a for both countries, i.e., the units of labor needed to produce one unit of good y or good x.

Good:	y	x
Country A	489	362
Country B	468	329

   (a) Which country has an **absolute advantage** in producing good y and x, respectively?

   (b) Which country has a **comparative advantage** in producing good y and x, respectively?

5. (6 points) **[Exchange rates]**

   Suppose an investor from Indonesia asks for your help. The Indonesian investor wants to buy new inputs for his production in Indonesia next year, i.e., t=2024. Today, i.e., t=2023, she has 10,000,000 Indonesian Rupiah (IDR) and she wonders what to do with this money for one year. She has two potential investments in mind. One is an investement in Europe with 4% of annual interest and the other one is an investment in Indonesia that offers 16% of annual interest. Where should she invest given the following conditions:

   - One Euro can be converted to 15,000 IDR this year.
   - You expect that one Euro can be converted to 20,000 IDR next year.
   - Moreover, you expect no inflation in both countries and no banking fees or alike.

   Please complete the sentences:

   - The value of your investment in Indonesia in the year 2024 is

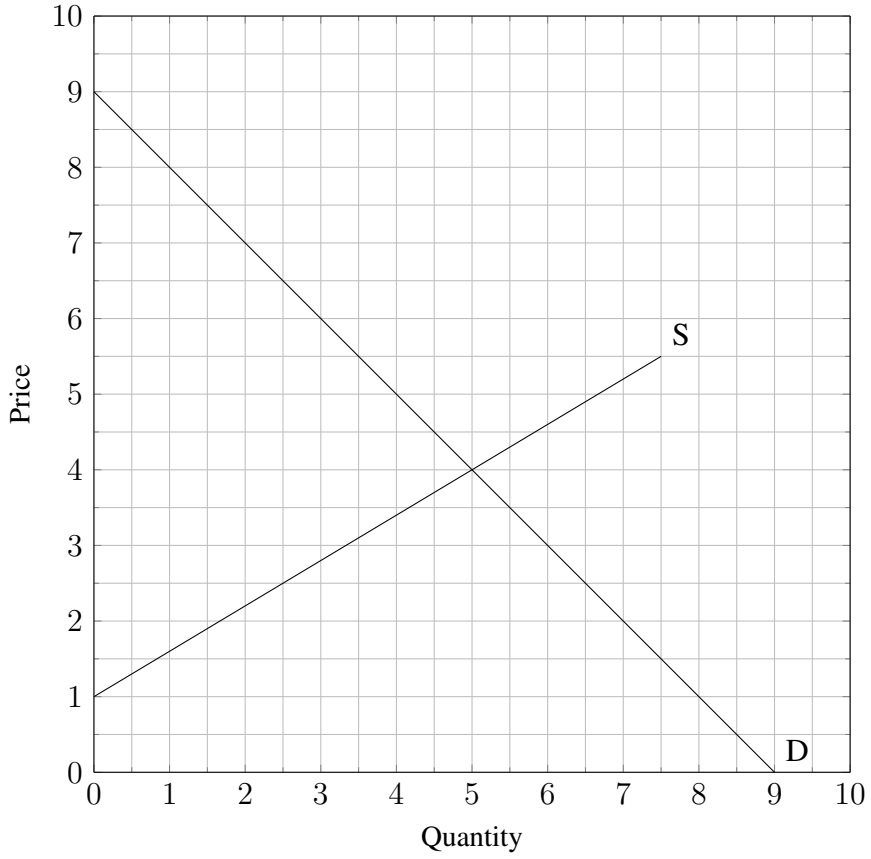
     _____ IDR.

   - The value of your investment in Europe in the year 2024 is

     _____ IDR.

6. (10 points) **[Markets]**

The following diagram shows the supply and demand schedule for a given good in a closed economy. The supply function is labeled with S and the demand function is labeled with D.



a) Please complete the sentences:
The equilibrium market price is $p =$_____.

The equilibrium quantity traded is $q =$_____.

b) Use the diagram above to sketch the area that represents the consumer surplus, the producer surplus, and total welfare.

c) Calculate producer surplus, consumer surplus, and total welfare.

Please go on to the next page...

7. (12 points) **[GDP]**

   The GDP per capita is a monetary measure of the market value of all the final goods and services produced in one year. Discuss why the GDP per capita is an imperfect measure for welfare and human well-being. Additionally, discuss two alternative indicators for welfare and human well-being.

8. (10 points) **[Keynesian economics]** Explain what we meant in lecture by the *reverse multiplier effect* and the *multiplier effect*. Discuss what governments or central banks can do to fight or mitigate the reverse multiplier effect.

Please go on to the next page...

9. (10 points) **[Consumer price index]** The consumer price index (CPI) is an accurate measure of the selected goods that aim to be a representative bundle of goods, but it is not a perfect measure of the cost of living. Why? Explain briefly the three sources of bias which we discussed in class.

Please go on to the next page...

10. (6 points) **[Balance of payments]** Explain briefly why net exports must equal net capital outflows using the *formal representation*.

End of exam

24-01_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	7	8	Total
Points:	16	8	10	12	6	8	8	22	90
Score:									

1 Mandatory task

1. (16 points) **[Perfect markets]** Describe the 7 conditions for perfectly competitive markets that we have discussed in the lecture.

Please go on to the next page...

2. (8 points) **[Exchange rates]**

   Suppose 1 US Dollar (USD) is equivalent to 1.20 Euros (EUR).

   - Calculate the equivalent amount in Euros if a person exchanges 500 US Dollars.

   - If the exchange rate changes to $1.15\frac{USD}{EUR}$, recalculate the equivalent amount in Euros for the same 500 US Dollars.

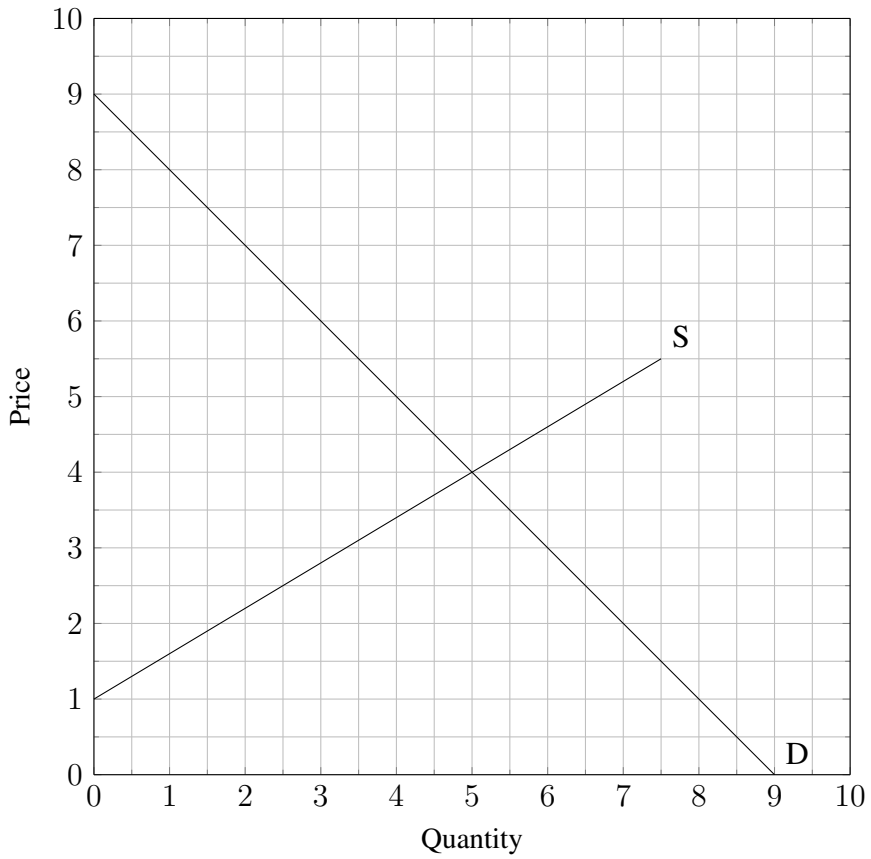
   - If the exchange rate changes to $1.15\frac{USD}{EUR}$, has the Euro appreciated or depreciated?

   - A European tourist plans to spend 1,000 Euros during a trip to the United States. Calculate the equivalent amount in US Dollars at the exchange rate of $1.15\frac{EUR}{USD}$.

Please go on to the next page...

3. (10 points) **[Markets]**

The following diagram shows the supply and demand schedule for a given good. The supply function is labeled with S and the demand function is labeled with D.



a) Please complete the sentences:
The equilibrium market price is $p =$_____.

The equilibrium quantity traded is $q =$_____.

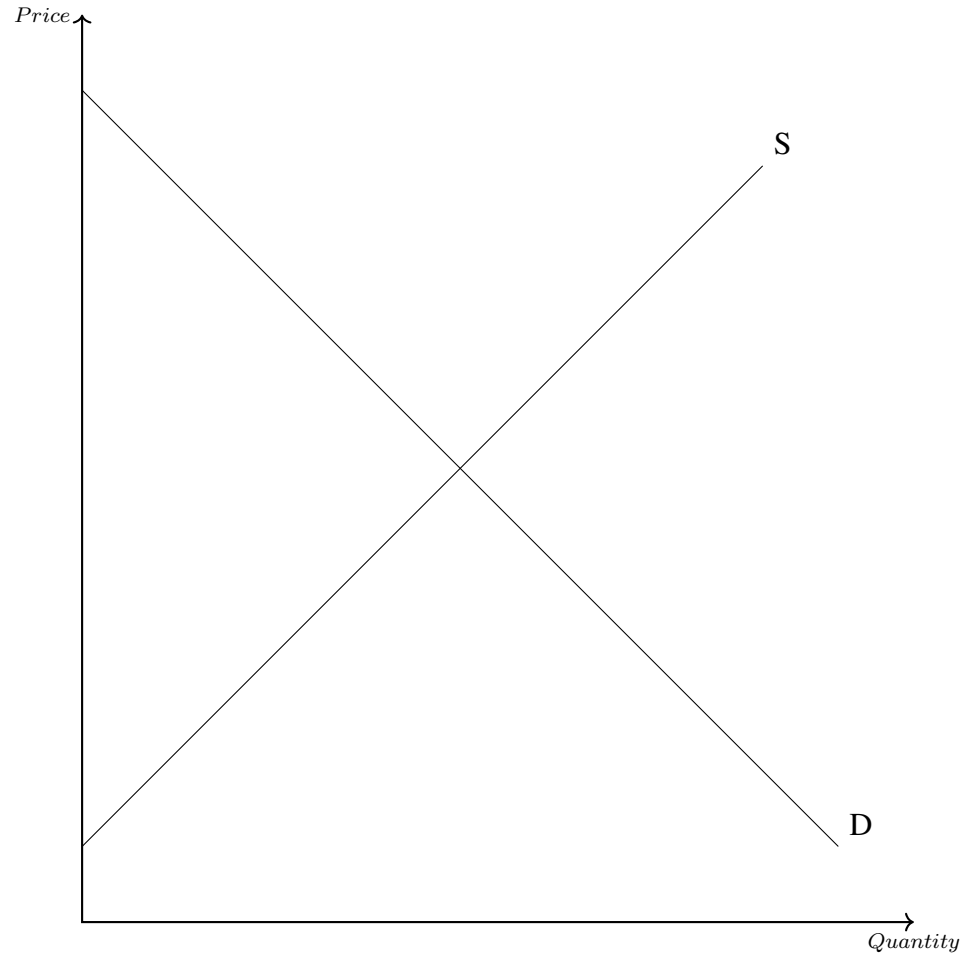
b) Use the diagram above to sketch the area that represents the consumer surplus, the producer surplus, and total welfare.

c) Calculate producer surplus, consumer surplus, and total welfare.

Please go on to the next page...

4. (12 points) **[Welfare implication of a tax]**

   Illustrate and discuss the consequences of a fixed excise tax when producers bear the tax burden. An excise tax is a government-imposed tax applicable when a producer makes a sale. In the case of a fixed excise tax, the seller must remit a predetermined amount to the government for each unit sold to a customer. Specifically, identify the consumer surplus, producer surplus, tax revenue, and deadweight loss in the diagram after the introduction of the tax.



5. (6 points) **[Introduction]** Please complete the sentences:

   - The scope of economics can be explained by asking: How do choices end up determining...

     _____

     ...goods and services get produced?

   - A **positive statement** attempts to describe the world as it is and it can be...

     _____

     ...by checking it against facts.

   - A **normative statement** claims how the world should be and cannot be...

     _____.

6. (8 points) **[Balance of payments]** Explain briefly why net exports must equal net capital outflows using the *formal representation*.

7. (8 points) **[Inflation]** Central banks and politicians try to keep inflation low because it has negative implications for an economy and a society. Name and explain four reasons.

Please go on to the next page...

2 Elective tasks: Choose 1 out of 2

Please choose 1 out of the following 2 tasks to work on. That means, you should either work on task 8 or on task 9. If you work on both tasks, only the first task will be evaluated. If you have started working on an task but have changed your mind, please cross out the task.

8. (22 points) **[Monopoly]** Provide an in-depth analysis of a monopolist's price-setting behavior. Explore how the profit-maximizing level of output is determined and draw comparisons between pricing and output in a monopolistic market and a market operating under perfect competition. Utilize a graphical representation of a downward-sloping demand curve to illustrate the contrasting effects on revenue that monopolists must consider when determining the optimal production level and pricing strategies. Furthermore, evaluate the impact of a monopolist's actions on economic welfare and examine potential government interventions aimed at mitigating adverse consequences resulting from a monopolist's rational behavior.

Please go on to the next page...

Please go on to the next page...

9. **[Measuring the economy]**

   (a) (11 points) The GDP per capita is a monetary measure of the market value of all the final goods and services produced in one year. Discuss why the GDP per capita is an imperfect measure for welfare and human well-being.

(b) (11 points) The consumer price index (CPI) is an accurate measure of the selected goods that aim to be a representative bundle of goods, but it is not a perfect measure of the cost of living. Why? Explain briefly the three sources of bias which we discussed in class.

End of exam

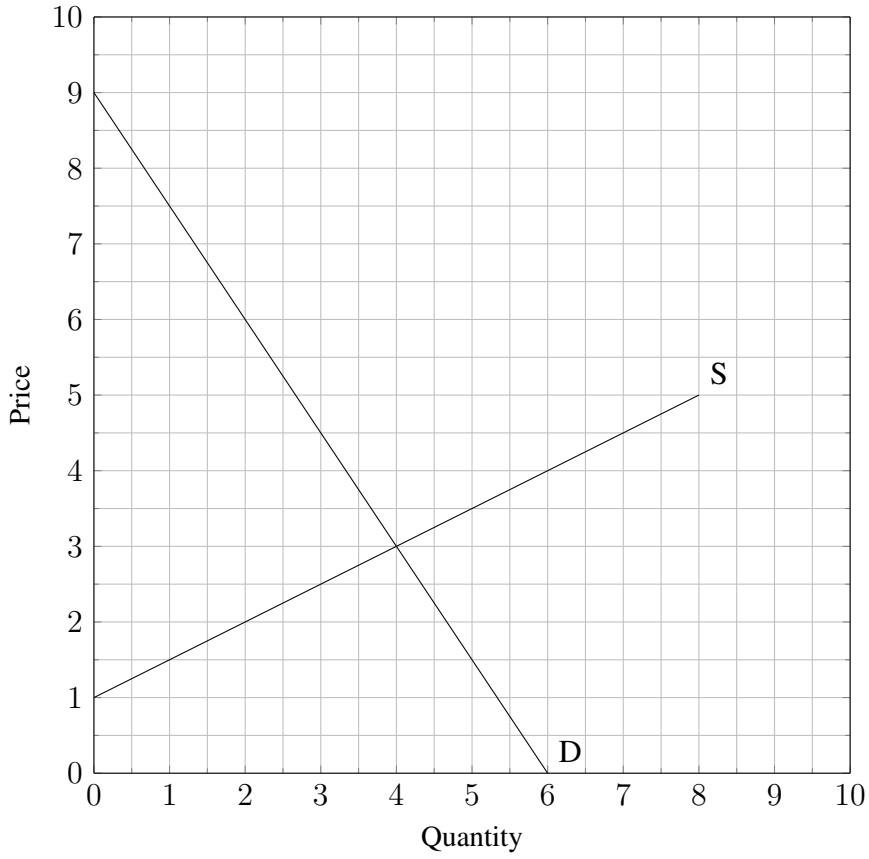
24-04_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	Total
Points:	10	6	25	10	8	31	90
Score:							

1. (10 points) **[Markets]**

The following diagram shows the supply and demand schedule for a given good. The supply function is labeled with S and the demand function is labeled with D.



a) Please complete the sentences:
The equilibrium market price is $p =$_____.

The equilibrium quantity traded is $q =$_____.

b) Use the diagram above to sketch the area that represents the consumer surplus, the producer surplus, and total welfare.

c) Calculate producer surplus, consumer surplus, and total welfare.

Please go on to the next page...

2. (6 points) **[Exchange rates]**

   Consider the following scenario involving the exchange rate between the Indian Rupee (INR) and the Euro (EUR):

   - In year t, 1 INR can be converted to 0.01 EUR.
   - In year $t + 1$, the exchange rate has changed such that 1 EUR can now be purchased for 91 INR.

   Express the exchange rate for both years in terms of direct quotation considering the Euro has your domestic currency. Moreover, discuss whether the Euro has appreciated or depreciated against the Indian Rupee from year t to year $t + 1$.

3. **[Measuring the Economy]**

   (a) (10 points) Explain the process of calculating the Consumer Price Index (CPI). Outline the five key steps involved in the calculation of the CPI.

(b) (9 points) While the Consumer Price Index (CPI) attempts to accurately measure the cost of a selected, representative bundle of goods, it is acknowledged that it does not perfectly capture the cost of living. Briefly explain why this is the case, focusing on the three sources of bias that were discussed in the lectures.

(c) (6 points) Suppose an economy consists of only two goods: Good X and Y. The sales and price data for these two goods over two different years are provided below:

Year	No. of X sold	Price per X	No. of Y sold	Price per Y
2022	100	€2	200	€0.5
2023	100	€1.5	200	€1

i) Assuming that Good X and Good Y are final goods, calculate the nominal GDP for both years.

ii) Calculate the real GDP for both years using 2022 as the base year.

4. (10 points) **[Balance of payments]** Explain briefly why net exports must equal net capital outflows using the *formal representation*. Additionally, discuss whether a net export surplus can serve as a reliable measure of a country's international competitiveness.

Please go on to the next page...

5. (8 points) **[Inflation]** Central banks and politicians try to keep inflation low because it has negative implications for an economy and a society. Name and explain four reasons.

Please go on to the next page...

6. **[Perfect markets and failure]**

   (a) (14 points) Describe the seven conditions for perfectly competitive markets that were outlined during the lecture.

(b) (9 points) **[Analyze a monopolist's price-setting behavior]** Describe how a monopolist set prices and hence determines the profit-maximizing level of output. Compare and contrast pricing and output decisions in a monopolistic market versus a perfectly competitive market. Further, assess the effects of monopolistic actions on economic welfare and explore how government interventions can address the negative outcomes of such behavior.

Please go on to the next page...

(c) (8 points) Select another source of market failure not previously discussed and elaborate on it, detailing its causes, effects, and possible solutions.

Please go on to the next page...

End of exam

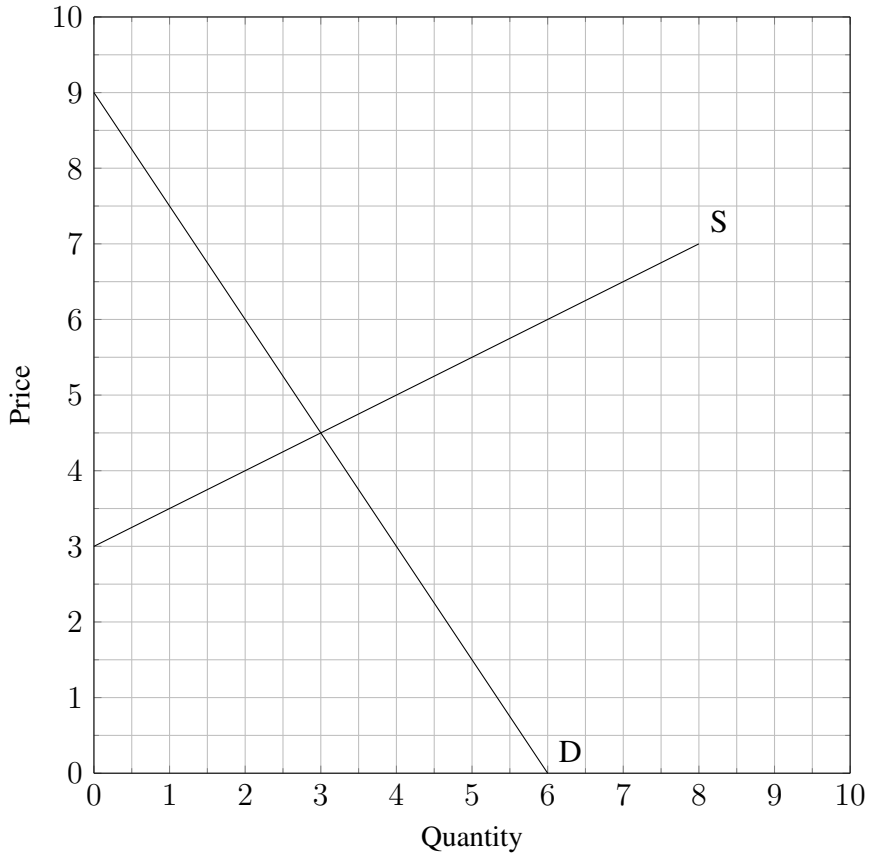
24-07_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	7	Total
Points:	10	10	5	27	8	22	8	90
Score:								

1. (10 points) **[Markets]**

The following diagram shows the supply and demand schedule for a given good. The supply function is labeled with S and the demand function is labeled with D.



a) Please complete the sentences:
The equilibrium market price is $p =$_____.

The equilibrium quantity traded is $q =$_____.

b) Use the diagram above to sketch the area that represents the consumer surplus, the producer surplus, and total welfare.

c) Calculate producer surplus, consumer surplus, and total welfare.

Please go on to the next page...

2. (10 points) **[Various]** Indicate which of the following statements is *false*. If you mark a statement as *False*, explain your decision.

   a) In economics, economic equilibrium is a situation in which economic forces such as supply and demand are balanced and in the absence of external influences the (equilibrium) values of economic variables will not change.
   ◯ True ◯ False, because...

   b) A substitute is a good that can be consumed in place of another good.
   ◯ True ◯ False, because...

   c) A complement is a good that goes well with another good.
   ◯ True ◯ False, because...

   d) An inferior good is a good for which the demand decreases if income decreases.
   ◯ True ◯ False, because...

   e) According to the law of demand, as the price of a good increases, the quantity demanded rises. Therefore, the demand curve slopes downward in a typical price-quantity diagram.
   ◯ True ◯ False, because...

f) According to the law of supply, as the price of a good decreases, the quantity supplied rises. Therefore, the supply curve slopes upward in a typical price-quantity diagram.
◯ True ◯ False, because...

g) If a monopolist can *discriminate prices perfectly*, the dead-weight loss is zero and the consumer surplus is maximized.
◯ True ◯ False, because...

3. (5 points) **[Market failure]**

Explain what is a negative production externality. Give and explain briefly one example of such an production externality.

4. **[Measuring the Economy]**

Suppose an economy consists of only three goods: Good X, Y, and Z. The sales and price data for these two goods over two different years are provided below:

Year	No. of X sold	Price per X	No. of Y sold	Price per Y	No. of Z sold	Price per Z
2022	110	€2.00	210	€1.50	1200	€0.05
2023	100	€1.80	220	€2.00	1257	€0.06

(a) (6 points) Assuming that Good X and Good Y are final goods and Good Z is an intermediate good, calculate the nominal GDP for both years.

(b) (4 points) Calculate the real GDP for both years using 2022 as the base year.

Please go on to the next page...

(c) (4 points) Calculate the Consumer Price Index for both years using 2022 as the base year.

(d) (9 points) Discuss why the GDP per capita is an imperfect measure for welfare and human well-being.

Please go on to the next page...

(e) (4 points) The annual GDP of Germany is approximately $4,457,216 million. The annual GDP of the United States is $27,360,900 million. Why are these two numbers inappropriate for comparing the standard of living in these two countries? Discuss briefly and ignore the general weaknesses of the GDP as a measure for welfare that you should have discussed in the previous task already.

5. (8 points) **[Inflation]** Central banks and politicians try to keep inflation low because it has negative implications for an economy and a society. Name and explain four reasons.

6. **[Markets]**

   (a) (14 points) Describe the seven conditions for perfectly competitive markets that were outlined during the lecture.

Please go on to the next page...

(b) (8 points) Explain how a monopolist sets prices and quantities of production for profit-maximizing. Compare and contrast pricing and output decisions in a monopolistic market versus a perfectly competitive market. Further, assess briefly the effects of monopolistic actions on economic welfare.

Please go on to the next page...

7. (8 points) **[Ricardian model]**

Given the assumptions of the Ricardo model, consider two countries: $C1$ and $C2$. These countries are equally endowed with the only production factor labor. In both countries, two goods can be produced: y and x. The table below provides the input coefficients, a, for both countries, representing the units of labor needed to produce one unit of each good.

	$C1$	$C2$
Good y	2	8
Good x	1	12

Discuss the international competitiveness of country $C2$ within the Ricardian model. Do you think that country $C2$ will successfully export a good to $C1$ and if so, which good do you think can it export and which one will it export? Explain your decision.

End of exam

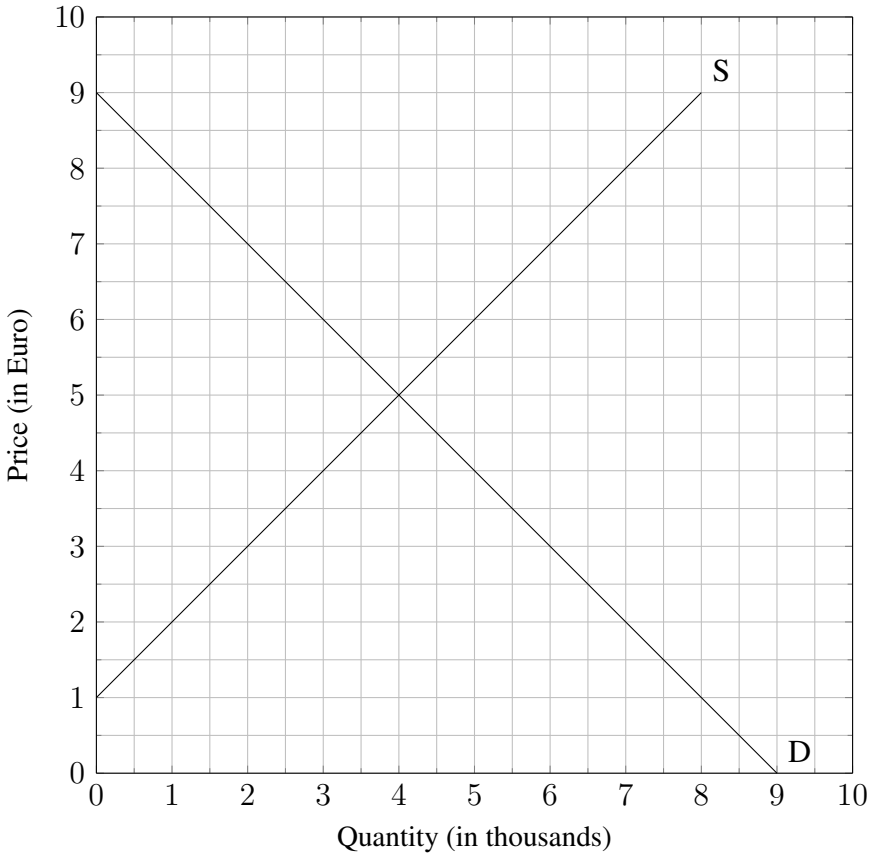
24-11_etgc.pdf

This box is for the examiner only.

Question:	1	2	3	4	5	6	Total
Points:	25	10	21	16	8	10	90
Score:							

1. (25 points) **[Markets]**

The following diagram shows the supply and demand schedule for a given good. The supply function is labeled with S and the demand function is labeled with D.



a) Please complete the sentences:
The equilibrium market price is $p =$_____.

The equilibrium quantity traded is $q =$_____.

b) Use the diagram above to sketch the area that represents the consumer surplus, the producer surplus, and total welfare.

c) Calculate producer surplus, consumer surplus, and total welfare.

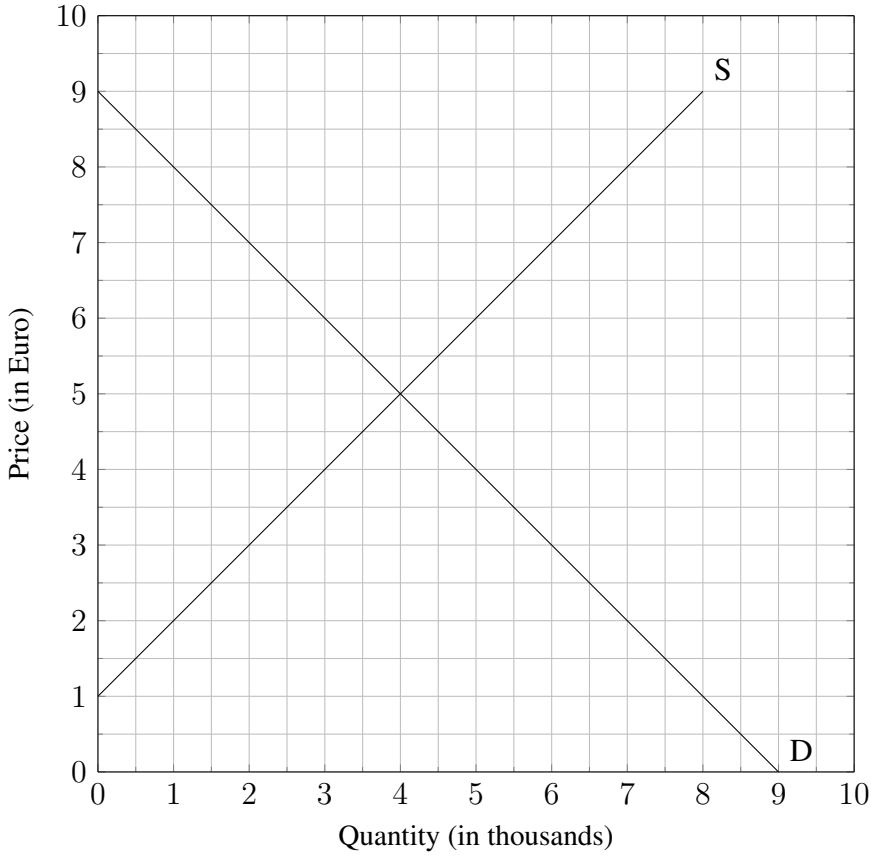
Please go on to the next page...

d)
- Suppose the government introduces a tax of 1 Euro per unit sold. Please recalculate:

  The new equilibrium market price is $p =$_____.

  The new equilibrium quantity traded is $q =$_____.

- Use the diagram **below** to sketch the area that represents the consumer surplus, the producer surplus, total welfare, and government revenue after the tax was introduced.



- Moreover, recalculate the new producer surplus, consumer surplus, total welfare, and government revenue.

2. (10 points) **[Market failure]**

   a) Explain what is a negative consumption externality. Give and explain briefly one example of such an consumption externality.

b) Explain what is a positive consumption externality. Give and explain briefly one example of such an consumption externality.

3. **[Measuring the Economy]**

Suppose an economy consists of only three goods: Good X, Y, and Z. The sales and price data for these two goods over two different years are provided below:

Year	No. of X sold	Price per X	No. of Y sold	Price per Y	No. of Z sold	Price per Z
2022	110	€2.00	210	€1.50	1200	€0.05
2023	140	€2.20	220	€1.00	1257	€0.06

(a) (6 points) Assuming that Good X and Good Y are final goods and Good Z is an intermediate good, calculate the nominal GDP for both years.

(b) (4 points) Calculate the real GDP for both years using 2022 as the base year.

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(c) (4 points) Calculate the Consumer Price Index for both years using 2022 as the base year.

(d) (3 points) Define the measure of GDP. ´

(e) (4 points) The annual GDP of Germany is approximately 4,083,656 million Euro. The annual GDP of the United States is $27,360,900 million. Why are these two numbers inappropriate for comparing the standard of living in these two countries? Discuss briefly and ignore the general weaknesses of the GDP as a measure for welfare.

4. **[Markets]**

(a) (8 points) Explain how a monopolist sets prices and quantities of production for profit-maximizing. Compare and contrast pricing and output decisions in a monopolistic market versus a perfectly competitive market. Further, assess briefly the effects of monopolistic actions on economic welfare.

(b) (8 points) Explain why perfect markets allocate resources efficiently. Also elaborate on what is meant with "markets allocate resources efficiently".

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5. (8 points) **[Ricardian model]**

Given the assumptions of the Ricardo model, consider two countries: $C1$ and $C2$. These countries are equally endowed with the only production factor labor. In both countries, two goods can be produced: y and x. The table below provides the input coefficients, a, for both countries, representing the units of labor needed to produce one unit of each good.

	$C1$	$C2$
Good y	3	8
Good x	7	12

Discuss the international competitiveness of country $C2$ within the Ricardian model. Do you think that country $C2$ will successfully export a good to $C1$ and if so, which good do you think can it export and which one will it export? Explain your decision.

6. (10 points) **[Inflation]** Central banks and politicians try to keep inflation low because it has negative implications for an economy and a society. Name and explain four reasons. Describe briefly how central banks can have an impact on inflation.

End of exam