

Practice Prompt: An Economic Analysis of Dynamic and Algorithmic Pricing

ECO204; Professor Khazra

Pre-exam Submission deadline: Sunday Nov. 23 midnight

- Online Crowdmark **pre-exam practice**: deadline Sunday Nov. 23 at 11:59PM
 - Extra 10 points to your writing assignment for this exercise. Please note that bonus marks are not eligible for regrade requests or appeals.
 - In-person exam: Wednesday Nov 26 at 5:00 PM at the exam center
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- **Important:** You must write each section in the assigned space. Writing the "body" in the "conclusion" section, for instance, will result in a lower grade as if it is your conclusion.
 - Each section should contain short, cohesive paragraphs that follow the prompt's guidelines. Avoid writing disconnected answers; the final product should resemble a coherent article.
 - You will be graded on the quality of your analysis, not the quantity of words. Aim for around 600 words; you may go up to 800, but no more.

Title: An Economic Analysis of Surge Price Regulation in ride-sharing Markets

There are three main groups in this prompt:

- (1) Firms using algorithmic or dynamic pricing (Ride-sharing firms using algorithmic surge pricing),
- (2) consumers, and
- (3) Regulators or policymakers.

Optional: you may use "DP firms" for firms using algorithmic or dynamic pricing in your writing if you want to distinguish firms that do DP pricing with firms that don't.

IMPORTANT: you can use this abbreviation in the exam as well.

Assignment Prompt:

This assignment will enhance your understanding of microeconomic principles by applying them to a contemporary issue and developing critical thinking and analytical skills. In this writing assignment, you will apply concepts from ECO204 to analyze how dynamic and algorithmic pricing influences market outcomes in modern digital and platform markets. With advances in artificial intelligence and data analytics, many companies (e.g., ride-sharing apps, airlines, online retailers) use algorithms to automatically adjust prices based on demand, competition, and consumer characteristics. While such pricing can improve efficiency (a change in the **cost function** shifting marginal cost) and resource allocation, it also raises concerns about fairness.

In microeconomics, **fairness** refers to how consumer surplus (welfare) is shared among consumers and how the total surplus (the “pie”) is divided between consumers and firms. This is not a normative concept. In your essays, your analysis should rely on facts, micro theory, and stated assumptions; **nothing in this definition requires making value judgments.**

ride-sharing platforms such as Uber or Lyft use dynamic pricing algorithms that increase fares during periods of high demand (e.g., rush hours, bad weather). While this helps allocate rides more efficiently and incentivizes driver supply, it can also lead to steep price spikes and consumer backlash.

Suppose the government imposes a surge-price cap, limiting fares to at most **$1.5 \times$ the base price** during peak times. Firms must still cover costs and maintain service availability, but they can no longer fully adjust prices to real-time demand.

Considering dynamic and algorithmic pricing influences and the regulatory landscape, analyze how a surge-price cap affects consumer /welfare, firm profits, and total welfare. Under what demand and cost conditions might the cap increase or reduce overall welfare? Consider both short-run (allocation, wait times) and long-run (entry, driver supply) effects. Finally, propose an alternative policy (e.g., off-peak discounts, disclosure rules, driver subsidies) that might achieve similar fairness goals with less welfare loss. Briefly explain its mechanism and potential trade-offs.

Procedure for Practice Assignment Submission

Important: I don’t want a perfect essay! I don’t want a chatGPT written essay! Please complete the readings, then time yourself to 100 minutes and write the practice essay. Write an essay like it’s the exam. And let chatGPT grade it for you. The more authentic your essay and your feedback, the higher the bonus marks!

1. **Q1: Handwritten Essay Submission:** Write your essay by hand (on paper + take picture or on tablet) and upload a clear, legible scan of the handwritten document to Crowdmark for Q1.
2. **Q2: AI Feedback:** After uploading, paste your handwritten work into GPT to request feedback. Focus on feedback related to microeconomic theory, structure,

clarity of assumptions, argument development, and adherence to instructions.

3. **Q3: Self-Reflection for Improvement:** Using the feedback from GPT, write a short reflection (10 bullet points or two paragraphs) outlining improvements for the exam. Include specific points on:
 - Mistakes made in the essay.
 - The three most significant areas for improvement regarding "the Economic Application and Analysis" and making the right "Economic Assumptions" you identified from the essay.
 - Plans to address these three areas in future assignments or exams.
 - Strategies for overall improvement based on the feedback, with a particular focus on the three most significant areas for improvement.
4. **Final Submission:** Submit three items on Crowdmark:
 - Q1: The original handwritten essay
 - Q2: The raw feedback from GPT (after a few back and forth)
 - Q3: The written reflection on areas for improvement

Introduction: Setting the Stage (Approx. 100 words)

1. **Hook (one sentence only!):** Start with a striking observation or question about dynamic or algorithmic pricing: for example, how ride-sharing prices surge within minutes or how online retailers adjust prices thousands of times per day. This could be a statistic, recent development, or observation.

Don't write more than one sentence, there's high opportunity cost of space.

2. **Summarize Your Paper in a Narrative:** In this part of your introduction, briefly outline your paper in one or two short paragraphs. You can state that, under your specified assumptions, the algorithmic pricing used in the ride-sharing market leads to certain effects. Then explain that the proposed policy of placing a cap on surge pricing has particular consequences, followed by your own policy recommendation and why it performs better. You can conclude by noting that the next section will present these points in more detail.
3. **Rule of thumb:** if someone only reads your introduction, they should be able to understand the whole paper.

Write your introduction after drafting the body to ensure a strong thesis.

Body: In-Depth Analysis (Approx. 400-500 words)

1. Market Mechanisms and Efficiency

1. **Market Dynamics:** Explain how dynamic pricing works, how firms adjust prices in response to demand, cost, or time-based fluctuations.
2. **Efficiency Effects:** Discuss potential efficiency gains (e.g., reduced shortages, better capacity use, smoother demand) and identify when these benefits are strongest.

2. Algorithmic Pricing, Fairness, and Market Power

1. **Price Discrimination and Personalization:** Describe how algorithmic pricing can segment consumers or personalize prices based on data. Relate this to microeconomic models of price discrimination.
2. **Market Power and Consumer Impact:** Analyze how algorithmic pricing might amplify or mitigate market power. Discuss effects on consumer surplus.

3. Government Regulation and Consumer Welfare

1. **Proposed Cap Policy:** Analyze the impact of the cap policy in regulating the market and competition. Then discuss the effect of this policy on consumer and producer welfare and whether it can have the desired impact.
2. **Propose a Policy:** Propose a policy that can address one of the shortfalls you mentioned in the previous section. Why is your policy better? What assumptions are you making? Compare and contrast.

Conclusion: Summarizing and Reflecting (Approx. 50-100 words)

1. **Summarize Key Findings:** Recap the main points on market structure, competition, regulation, and consumer welfare.
2. Your conclusion should be dense, strong, a very good summary of the paper. Don't miss any points you mentioned in the paper, and don't introduce new topics in the conclusion that you have not talked about in the body of the paper.

[illegible][illegible]

[illegible]

3 Conclusion

scratch paper, will not be graded

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