

Final Exam
(100 points)

- (8 pts) 1. Relying on graphical tools primarily, explain the construction of a production possibilities frontier.
- (8 pts) 2. "The Pareto Principle (PP) strongly favors the status quo." True or False. Justify your position.
- (8 pts) 3. Define "endogenous income" and describe its relevance to a welfare measurement topic.
- (16 pts) 4. What does "externality" mean and what is the economic significance of this term? Describe and compare 3 and only 3 policy approaches that might be applied to "solve" particular externalities. What does "solve" mean in this context?
- (24 pts) 5. Industry A is expected to experience a 10% increase in the price of its product. You have the task of assessing the impact of this change on the industry. Define the welfare measure you will be seeking. Explain why it is the appropriate measure and if there are alternative, competing measures that other analysts might suggest. Clearly identify two realistic approaches for obtaining the measure you seek. For each approach, (a) include a graphical depiction that makes use of reasonably available data, (b) provide formulas for the measure that corresponds to your graphics, and (c) discuss needed data.

Problem 6 is on the back of this page.

- (36 pts) 6. A city owns a large stadium used only by a sports team to play 10 games each year. Whereas the stadium is publicly owned, the team is privately owned. There is only one such team in the area. The stadium is used only when the team hosts a game played against a team from another city. Stadiums do not depreciate, have no operating costs, and this one can seat 60,000 people. Every seat in the stadium provides the exact same experience; seats are perfect substitutes. It is not possible to expand the capacity of the current stadium.

Ticket sales are entirely managed by the team's owners, who are profit motivated. No revenue is received by the city. All of the team's costs are fixed costs, in the sense that costs are independent of the number of seats used during games. That is, costs are the same regardless of attendance. Demand is sufficient to make the team profitable.

Ticket demand for each game is given by $q_0 = 120,000 - 1200p$.

Due in part to the team's increased popularity (already reflected in the q_0 demand function), the city is considering a proposal to demolish the stadium and replace it with a more modern facility. The new stadium will hold 96,000 people and will only take a few months to construct. No games will have to be cancelled. With a more modern facility the sporting experience will be better for the audience, so the demand function is expected shift to $q_1 = 126,000 - 1200p$. Again, the new seats will be perfect substitutes with one another.

Stadium replacement will cost \$100 million and the city plans to pay this amount by initiating a 5% sales tax rate on all locally sold goods (except sporting event tickets). Once the stadium costs are retired, the sales tax rate shall be returned to 0%. The sales tax base consists of \$250 million of goods sold annually. [Let's think of this as 250,000 units of a good priced at \$1000 each.] Supply and demand elasticities for this aggregate good are estimated to be +0.5 and -0.5 respectively.

- a. Perform and interpret quantitative analysis to assist city leaders in making a decision about the stadium proposal. Do what you can and explain the rest. If additional information is necessary for completing your analysis, explain the needed elements and how (quantitatively) they are to be used. Include interpretation and project advice for when you complete all parts of your study.