

Problem 1

Krispy Kreme (Firm A) and Dunkin Donuts (Firm B) compete in a Cournot donut market (i.e. they compete by deciding how many donuts to fry up each morning) with the inverse donut demand curve $P = 120 - 2Q$ and donut marginal cost $MC = 60$.

- (a) Find donut consumer surplus, donut producer surplus, and donut deadweight loss if the firms compete and play the Nash Equilibrium. (Okay, I'll stop doing that now.)
- (b) Suppose the two firms propose to merge and they are no other competitors or entrants in the industry. What would be the pre- and post-merger Hirschman-Herfindahl indices in the industry?
- (c) Find consumer surplus, producer surplus, and deadweight loss after the firms merge.
- (d) By how much would marginal costs need to fall in part (c) to leave consumer surplus unchanged from part (a)? What would producer surplus and deadweight loss be?
- (e) By how much would marginal costs need to fall in part (c) in order to leave total welfare unchanged?

Problem 2

Firm A sells donuts and Firm B sells coffee. Their respective demand functions are

$$Q_A = 150 - 4P_A - 2P_B,$$

$$Q_B = 150 - 4P_B - 2P_A.$$

Each firm has a marginal cost of $MC = 15$.

- (a) Find prices if the firms engage in Bertrand competition.
- (b) If the firms merge, do you expect the prices to increase or decrease?
- (c) Find prices if the firms merge.

Problem 3

Determine whether the following statements are true or false and explain why.

- (a) A merger of Krispy Kreme and Dunkin Donuts is an example of a vertical merger.
- (b) A merger of Safeway and DiGiorno Pizza is an example of a vertical merger.
- (c) When determining the relevant product market using a SSNIP test, regulators consider both (i) whether consumers will purchase substitutes instead, and (ii) whether consumers will stop purchasing altogether.