Problem 1 (60%)

U.S. tariffs against China have increased from around 3% to 20% during the U.S-China trade war. Consider a partial equilibrium model with two countries (U.S. and China) and one good. You are not required to consider other markets (i.e., other goods, the labor market, and so on). Assume for now that China does not retaliate against the U.S. tariff increase. Analyze the impact of the tariff increase on the U.S. economy.

a) What are the gains/losses for different groups (consumers, producers and the government)?

b) What is the overall welfare effect of the tariff increase?

c) Some policymakers claim that the tariff increase is optimal, i.e. it will maximize U.S. welfare. Discuss this claim.

d) Some policymakers claim that the tariff increase will not affect U.S. prices much. Consider the following home import demand curve

$$MD = a - 500\tilde{P}$$

and foreign export supply curve

$$XS = b + 2P_W,$$

where $\tilde{P}$ is the domestic (U.S.) price and P_W is the world market price. Discuss this claim.

Problem 2 (40%)

Consider two countries, the U.S. ($i = 1$) and China ($i = 2$), where both countries set an import tariff x_i. The payoff for country i is

$$u_i = 2000 + 60x_i + x_i x_j - x_i^2 - 90x_j$$

a) Assume that each country sets tariffs simultaneously and independently. What is the tariff x_1 and x_2 that maximizes national welfare (payoffs), as a function of x_2 and x_1, respectively? What is the Nash equilibrium is this static game, i.e. what are the equilibrium tariffs x_1 and x_2?

b) Compare the equilibrium in a) with the following scenarios:

1. The U.S. sets its optimal tariff under the belief that China does not respond (i.e., $x_2 = 0$).

2. Both countries set a zero tariff rate (i.e., $x_1 = x_2 = 0$).

Compare national welfare for the U.S. and China under (1) and (2), and constrast your findings to the Nash equilibrium under a). Explain and provide economic intuition for your findings.