QUESTION 1 – Drug pricing. Assume that the government of Canada imposes price controls on prescription drugs, while the U.S. government does not. The population of the United States is much larger than that of Canada, and Americans use many more prescription drugs than Canadians. Assume that all prescription drugs are invented and produced in the United States. Drug companies may choose where to sell their products and a country cannot compel a drug company to supply its products. For drugs that are sold in Canada, however, the Canadian government sets the maximum price at a level that results in lower drug prices than would be the case without the price control.

A. Consider a situation in which Canadians must obtain prescription drugs in Canada and Americans must obtain their prescription drugs in the United States – consumers are not allowed to buy drugs in one country for use in the other. How would you expect drug prices in Canada to differ from those in the United States? Why? Would all drugs be available in both countries? Explain. Be sure that you are clear regarding the incentives facing firms.

B. Imagine that the United States enacts a law requiring drug companies to sell a drug at the same price in the United States as in Canada, if and only if a drug is sold in Canada. If the drug is not sold in Canada, then the drug company can set the price in the United States. Why would the result of this law together with the Canadian price controls lead to a situation in which some drugs are no longer sold in Canada? (while other drugs remain available in Canada)

C. The law from part B is removed. Now imagine that consumers are allowed to cross the border to purchase drugs in either country and that it is quite easy and inexpensive for consumers to go to
either country—Americans can easily buy drugs in Canada if they want and Canadians can easily purchase drugs in the United States (perhaps this is done through a series of internet tubes). How would prices and the availability of prescription drugs in each country differ from the situation in part A? Explain.

D. As you can imagine, it is quite costly to develop new medications—and note again that all drugs are developed in the United States. What impact would you expect on the number of new drugs developed in each of parts A, B, and C? Your answer should rank the three situations for the most and least development of new prescription drugs, and then explain the ranking.

QUESTION 2 – Family subsidies. Imagine that there are 2 million families in the United States whose earnings (from their jobs) are less than $15,000 per year. For the purpose of this question, ignore all sources of income other than work and the government subsidies discussed below. Note that earnings are the money a family makes from working at a job. Income is the money a family has from the combination of earnings and cash the family receives from the government.

A. The government decides that every family should have a minimum annual income of $15,000 per year and institutes a policy in which any family with earnings from their job below $15,000 receives cash from the government in the amount necessary to reach $15,000. A family with earnings of $7,200, for example, receives $7,800 in cash from the government. A family with zero earnings receives $15,000 in cash from the government. What is the impact of this policy on the number of people who work compared to the situation in which there is no subsidy policy? What happens to the earnings of these 3 million families with the subsidy policy as opposed to without the subsidy policy? What happens to the incomes of these 3 million families?

B. Would this policy affect families that had earnings from their jobs of $16,500 per year before the subsidy policy in part A was put into place? How? Would these families work more, less, or the same? Would all families with earnings from their jobs of $16,500 per year respond in the same way? Explain.

C. Now imagine a change in the subsidy policy. The government provides a flat amount of $15,000 to all families with earnings of $15,000 or less. There is no subsidy for people with earnings above $15,000. So a person with earnings of $1,100 would have an income of $16,100. A person who does not work would have an income of 15,000. Would you expect more people to work with this new subsidy policy as compared to the situation with the subsidy policy in part A? Or would you expect fewer people to work with this new subsidy policy? Explain.

D. How would the new subsidy policy put in place in part C affect families that had earnings of $16,500 before any subsidy was put in place? Would these families work more, less, or the same as compared to the situation in which there was no subsidy? Would all families with earnings from their jobs of $16,500 per year respond in the same way? Explain.
QUESTION 3 - Food. This question asks you about supply and demand, using culinary examples.

A. A typical American celebration of the Thanksgiving holiday involves eating turkey and sweet potatoes. The meal must have both items; eating one item but not the other is viewed as a failed holiday and you should assume that Americans do not eat just turkey or sweet potato. Imagine that a viral Youtube video shows that turkeys are raised in poor conditions and this makes Americans decide that they do not want to eat turkey. Americans instead switch to eating Tofu for Thanksgiving. This is known as eating Tofurkey, which is eaten along with a side dish of quinoa (an edible grain-like crop that is actually related to beets). What happens to the prices of turkey, sweet potato, tofu, and quinoa? Explain for all four of the food items.

B. A typical American celebration of the July 4 Independence Day holiday can involve eating either hamburgers or hot dogs – both are equally acceptable, enjoyable, and appropriate. For a successful holiday, a person needs to eat only one or the other – there is no need to eat both a hamburger and a hot dog. Imagine that a viral Youtube video shows that the chemicals in hot dogs have strong anti-oxidant properties that extend the lifespan of people who eat hot dogs. That is, hot dogs are shown to be extremely healthy. The same Youtube video shows that hamburgers are actually quite unhealthy. What would you expect to happen to the prices of hamburgers and hot dogs? What would you expect to happen to the prices of hamburger buns and hot dog buns? Explain.

C. Hostess is the company that produces the Twinkie snack food. Look at the picture below. Is Hostess maximizing its profit? If yes, explain. If no, explain what Hostess should do to maximize its profit.
QUESTION 4. Moral hazard and adverse selection in financial markets. Imagine that you are a bank executive in a town in which every home has declined in value from $100,000 to $80,000. Your bank has made 500 mortgage loans to borrowers in this situation. The economic situation in your area has worsened from the time at which you originally made the 500 loans, so more people are unemployed than in the past (the unemployment rate in your area is up from 4 percent to 10 percent). As you can imagine, people who lose their jobs do not have the money to pay back their mortgages. You keep in touch with these 500 borrowers and know their individual situations – you know which of them are unemployed and which of them are doing ok in their jobs. About 100 of the borrowers have lost their jobs and are in financial trouble, while around 400 of them are still employed.

Just to use simple numbers, assume that the monthly mortgage payment for each of those 500 loans is $1,000, which reflected the $100,000 value of the house. With each of the houses now worth only $80,000, the monthly payment if the loan were to be made today would be $800 per month. But the monthly payment remains at $1,000 per month until you decide to change it, even though the home is only worth $80,000 instead of $100,000. The home acts as the collateral for a mortgage loan. If a homeowner does not pay back their loan, your bank takes back the house (you repossess it) and sells it. As you can imagine, homes in this situation are typically not in perfect condition. In selling repossessed homes, the bank recovers only half of what the house is worth. So if a home is worth $80,000, the bank recovers $40,000 when it sells the home.

The government has a policy interest in reducing the number of people who cannot afford their monthly mortgage payments and are kicked out of their homes when the bank takes the home and sells it. Consider a proposal for a government policy in which the bank agrees to reduce mortgage payments to the monthly payments that reflect the current value of the home. So a homeowner who owed $1,000 per month would pay $800 per month instead, reflecting the lower actual value of the home. On any home in which the bank agrees to reduce the mortgage payment from $1,000 to $800, the government will pay the bank $80,000 for the home in case the borrower eventually defaults on their loan (that is, in case the borrower does not pay back their mortgage). The government would then sell the home while the bank would get the $80,000, which would be a loss of $20,000 on the original $100,000 loan.

A. An analyst commenting on this policy proposal (accurately) states that the proposal involves both moral hazard and adverse selection. Explain where the moral hazard and adverse selection come about in this policy proposal.

B. As the bank executive, would you participate in this program? Explain from the point of view of the bank. You are looking to maximize the financial outcome for the bank. Would you reduce the mortgage payments for all 500 of the loans? If yes, why? If no, how would you decide which borrowers to reduce the payments on?
QUESTION 5 – Vaccines. Imagine that you are a government official considering policies to induce people to vaccinate children against the measles (a highly contagious disease for which there is an effective vaccine).

A. Why would you want to put in place a government intervention in the market for measles vaccines? What is the role of the government in this situation? Would this same rationale apply to a government policy to induce people to treat their acne? (acne is a facial condition that is unsightly but not contagious)

B. Consider two possible policies: a $250 fine for people who do not vaccinate their children, or a $250 reward to people who do vaccinate their children. Of these two policies, would either of them lead to more children getting vaccinated? Explain.

C. Imagine now that your government has a very tight budget situation – you cannot even afford to buy paper for the printers in your government office! Does this situation lead you to change your answer to part B?

END OF EXAM.

- Is your name and email address in the document?
- Have you put page numbers in the document?
- Is your name part of the filename?

⇒ Send me your answers on pswagel@umd.edu