

## Multiple Choice

1. Which is better for addressing environmental externalities from  $CO_2$  emissions: setting a tax at the level of the externality or instituting a cap-and-trade system at the socially optimal quantity?
  - (a) The emissions tax is superior because it will result in more total social surplus
  - (b) The cap-and-trade system is superior because it will results in more total social surplus
  - (c) Both systems will result in the same total social surplus
2. The economic model of a utility maximizing consumer assumes that
  - (a) People's decisions may be controlled by someone else such as a parent
  - (b) People may be overwhelmed by too many consumption choices
  - (c) People are rational and optimize
  - (d) People may be time-inconsistent in their decisions
3. Since 2001, 2,216 Americans have died in the war in Afghanistan.<sup>1</sup> President Trump decided in 2018 to stay committed to Afghanistan with about 15,000 troops largely supporting Afghan security forces. Many citizens support this decision even if they believe the US has little chance of a strong outcome because they believe that if forces withdrew, the 2,216 lives lost would have been in vain. This rationale can be best attributed to
  - (a) Anchoring
  - (b) Overconfidence
  - (c) Sunk cost fallacy
  - (d) Hassle factors
4. LoJack is a small radio transmitter that can be hidden in a car. If the car is reported stolen, police can use the transmitter to track the location of the car and often recover the vehicle. Researchers found that the use of LoJack reduced car thefts significantly even for cars without transmitters. This is evidence of
  - (a) Negative externality
  - (b) Positive externality
  - (c) Excess demand
  - (d) Excess supply
5. Take-up rates for the Supplement Assistance Nutrition Assistance Program (SNAP) are low. Finkelstein and Notowidigdo (2019) conducted a field experiment involving 30,000 elderly individuals in Pennsylvania likely eligible for SNAP but not currently enrolled.<sup>2</sup> One third of these individuals were randomly selected to receive a reminder letter that included a phone number to the PA Benefits Center that they could call to apply for SNAP over the phone. At the conclusion of the follow-up period, these randomly chosen individuals had enrollment rates that were 18 percentage points higher than individuals in the control group who received no letter. The intervention must have
  - (a) Addressed endowment effects
  - (b) Reduced hassle costs
  - (c) Changed mental accounting
  - (d) Altered reference points

Year	New York State Minimum Wage	Consumer Price Index
1968	1.60	34.79
1979	2.90	72.58
1999	4.25	166.58
2019	11.10	255.65

6. Above is a table that displays the minimum wage for New York State and the Consumer Price Index (CPI) for the years 1968, 1979, 1999, and 2019. Looking in terms of 2019 dollars, in which year did the minimum wage in New York State have the highest purchasing power?
- 1968
  - 1979
  - 1999
  - 2019
7. Congress recently signed into law the American Rescue Plan. Within that law, Congress authorized that individuals earning less than \$75,000 per year, heads of households earning less than \$112,500 per year and couples filing jointly earning less than \$150,000 to receive \$1,400 stimulus checks. Congress also authorized expansion of the Child Tax Credit, which gives (nearly all) parents \$3,000 for every child aged 6–17 and \$3,600 for every child under age 6. We would classify stimulus checks and an expanded child tax credit as what type of welfare programs?
- Stimulus checks = categorical in-kind transfer; child tax credit = categorical in-kind transfer.
  - Stimulus checks = categorical cash transfer; child tax credit = categorical cash transfer.
  - Stimulus checks = means-tested in-kind transfer; child tax credit = categorical in-kind transfer.
  - Stimulus checks = means-tested cash transfer; child tax credit = categorical cash transfer.
8. All of the following statements about Social Security are true EXCEPT:
- It encourages individuals to save on their own.
  - It has contributed to the sharp decline in elderly poverty rates since the 1960s.
  - Rising life expectancy coupled with low birth rates has threatened the fiscal solvency of the programs.
  - It is paternalistic, in that people may not save enough for retirement on their own so the government believes it is in the best interest of the people to have the program in place.
9. Markets with monopolistic competition can behave differently than markets with perfect competition because monopolists act as price-setters while perfectly competitive firms act as price-takers. Lauren claims that because monopolists can set their price, they will typically charge consumers a higher price and produce less output than there would be under perfect competition. Jason claims that monopolists achieve their market power simply because they are the most productive firms and that if competitors wanted to, they could easily and freely enter the market to compete with the monopolists and make the market more competitive. Who is correct?
- Neither Lauren nor Jason is correct.
  - Only Lauren is correct.
  - Only Jason is correct.
  - Both Lauren and Jason are correct.

<sup>1</sup>Casualty Status as of June 17, 2019. <https://dod.defense.gov/News/Casualty-Status/>

<sup>2</sup>Finkelstein, Amy and Matthew J. Notowidigdo. 2019. "Take-up and Targeting: Experimental Evidence from SNAP." Working Paper.

## Shorter Questions

1. The Center for Disease Control recommends that adolescents receive the Human Papillomavirus (HPV) vaccine which protects against the two most common types of HPV that cause cervical cancer.
  - (a) Explain whether each of the following is evidence of moral hazard, adverse selection, or neither. (4 points)
    - i. Moghtaderi and Dor (2016) found that after receiving the HPV vaccine, women were more likely to have a Pap smear test which screens for cervical cancer.<sup>3</sup>
    - ii. Hill (2014) found that after receiving the vaccine, low-income adolescents were more likely to engage in risky sexual behaviors.<sup>4</sup>
  - (b) Do the findings above make recommending the vaccine more or less attractive from a health policy perspective? (2 points)

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<sup>3</sup>Moghtaderi, Ali, and Avi Dor. 2016. "Immunization and Moral Hazard: The HPV Vaccine and Uptake of Cancer Screening." NBER Working Paper No 22523.

<sup>4</sup>Hill, Anna. 2014. "Medical Innovation and Moral Hazard: The Effect of the HPV Vaccine on Risky Sexual Behavior" Working Paper.



2. During the coronavirus pandemic, stay-at-home orders and decreases in demand for many products and services caused unemployment rates to skyrocket. As a result unemployment insurance claims increased from only 200,000 per week in early March 2020 to 7 million per week in late March 2020. Gong, Noel and Vavra (2020)<sup>5</sup> analyzed data for unemployment insurance recipients from April 2020 to July 2020 and found that 76% of workers eligible for unemployment compensation received unemployment insurance benefits that exceeded 100% of what they were making when employed. They conclude, “Groups with dramatic declines in labor income during the pandemic did not necessarily have commensurate declines in overall cash flow once unemployment insurance benefits are included.”
- (a) According to this study, did unemployment insurance successfully facilitate consumption smoothing for most recipients? Explain. Be sure to define what is meant by the term consumption smoothing. (3 points)

- (b) To be eligible for unemployment insurance benefits, most states require recipients be actively looking for a job. Explain how this requirement addresses a moral hazard concern. (3 points)

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<sup>5</sup>Ganong, Peter, Pascal Noel, and Joseph S. Vavra. 2020. “US Unemployment Insurance Replacement Rates During the Pandemic.” Becker Friedman Institute Working Paper. <https://bfi.uchicago.edu/working-paper/2020-62/>

3. In class, we discussed different kinds of welfare programs and how it is impossible for a welfare program to simultaneously incentivize labor supply, redistribute income, and lower costs. In designing a welfare program, a policymaker has to make a choice about which to prioritize. Two welfare programs we discussed in detail were Temporary Assistance for Needy Families (TANF) and the Earned Income Tax Credit (EITC), both of which provide cash assistance to low-income households. Recall that TANF had a benefit guarantee while the EITC did not.

(a) For no-income or extremely low-income households, does the framework of TANF incentivize or disincentive labor? Explain. *(2.5 points)*

(b) For no-income or extremely low-income households, does the framework of the EITC incentivize or disincentive labor? Explain. *(2.5 points)*





## Long Question 2: Cost-Benefit Analysis of Nutrition Assistance Program

The HealthyMatch program in Rhode Island was a program proposed by the Rhode Island Public Health Institute. If implemented, it would provide Supplemental Nutrition Assistance Program (SNAP) recipients with a one-to-one dollar match for fruit and vegetable purposes. The hope is that this would incentivize low-income households to consume healthier foods, reducing long-term healthcare costs. The program would entail several upfront costs including recruiting retailers to participate and the costs of modifying the electronic cash registers to accommodate the HealthyMatch benefits. Ongoing costs would include the administrative costs of the program, the direct costs of providing the nutrition incentives, costs of training retailers, and the costs of advertising the program to SNAP recipients.

1. A group of MPA students calculated the up-front cost of the program as the cost of retailer recruitment plus the cost of modifying the cash registers. Then they added 0.19 times this cost with 0.19 representing the marginal cost of public funds.<sup>7</sup> What does the marginal cost of public funds represent, and why was it included in the calculation for the start-up cost of the program? (3 points)
2. The table below shows the estimated initial start-up costs and annual costs of the program over the next 10 years. Write down an expression for the net present value of the cost over the next 10 years assuming a social discount rate of 3%. (5 points)

Table H.1  
Costs and Benefits of HealthyMatch by Year

	PROGRAM YEAR										
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
COSTS											
Startup Costs (\$)	690,000										
Annual Costs (\$)		4,760,000	4,600,000	4,600,000	4,600,000	4,600,000	4,600,000	4,600,000	4,600,000	4,600,000	4,600,000
Opportunity cost of public funds (\$)	130,000	900,000	880,000	880,000	880,000	880,000	880,000	880,000	880,000	880,000	880,000

<sup>7</sup>Frank, Emily, Erik Gartland, Amanda Hejna, Kassandra Martincheck, Lillian Schultze & Hannah Stephens. 2018. "Cost-Benefit Analysis of HealthyMatch: A Rhode Island Nutrition Incentive Program."

3. What information would the students need to draw on to calculate monetized benefits of the program? Where might they obtain this information and what assumptions would they need to make? Be as specific as possible in your answer. *(6 points)*



### Long Question 3: Improving Tax Compliance

Property taxes are the primary source of tax revenue for most U.S. cities. Yet, collection of taxes is problematic. For example, even though property owners who fail to pay taxes are subject to fines and penalties, in Philadelphia, only 88% of assessed revenues are actually collected as taxes. This failure to collect the property tax on time creates budget uncertainty at best and budget deficits at worst, and late payments are costly to the city.

When a delinquent taxpayer does not respond to penalties and fines, the city can issue a tax lien on the property equal to the value of the taxes owed and accrued interest and penalties. A lien does not impose an immediate direct cost on the taxpayer since payment to the holder of the tax lien will not occur until the sale of the property. The owner of the lien, typically the city, can start forced sale of the property through a foreclosure process. The home is then sold at auction with proceeds of the sale used to pay taxes, interest, and penalties due with any remaining proceeds from the sale returned to the property owner. It is only possible to avoid payment by abandoning the property, a costly option for most homeowners.

The City of Philadelphia would like to “nudge” taxpayers who pay property taxes late to pay on time.

1. What is a “nudge” and why might it be beneficial to use “nudges” when trying to get individuals to participate in an event or program? *(2 points)*
  
  
  
  
  
  
  
  
  
  
2. Provide two reasons why some households may still fail to pay property taxes on time despite being subject to fines and penalties. *(2 points)*
  
  
  
  
  
  
  
  
  
  
3. What would you suggest they do to “nudge” late taxpayers? You may assume that they have addresses of each person. Be as specific as possible and justify your choices using appropriate terminology and insights from behavioral economics. *(7 points)*