Problem Set 4
HONORS 259L *Solutions*
Due November ** in class.
(Two of these questions will be graded.)

1) For the following types of scenarios, describe whether this is a situation of moral hazard or adverse selection and what you might predict will happen.

   a) New markets for mortgage backed securities mean that local banks can now sell off their mortgages. They no longer bear the cost of providing loans to households that cannot afford them and later default. *I view this as a moral hazard issue. Previously, if banks held the mortgages, they had an incentive to do "due diligence" in assessing how secure the borrower was. Now, since they sell off the mortgage, they do not have such an incentive to take a lot of care.*

   b) A new credit card company offers credit cards to customers offering a billing period of two months instead of the usual one month. *This could be either but adverse selection is likely a good story. Credit card users can be crudely divided into "revolvers" those who pay the minimum balance and "payers", those who do not maintain a balance. The former are the most lucrative for the card companies but they are less likely to find the two month billing period so important. Thus, this policy is most likely to attract the less profitable payers. Most students called this adverse selection but gave the answer that poor credit risk customers would accept. I do not see that. On p. 247, Dixit and Naleuff offer a related but slightly different option that card companies use to select profitable card holders.,*

   c) A new healthcare reform bill requires insurance companies to offer insurance without a clause excluding pre-existing health conditions. *Unless the bill also requires all people to get health insurance, there is a good chance that many of the uninsured will not buy insurance until they learn they have a health problem. This is a classic case of adverse selection.*

   d) The International Monetary Fund establishes a program to bail out international lenders whenever a country finds itself in an economic crisis and cannot pay its foreign loans. *This has often been characterized as a moral hazard problem. More international lenders advance loans to debtors without doing appropriate "sovereign risk" analysis in the expectation that they will be bailed out by the IMF.*

   e) A university offers financial aid to any student who claims he or she needs it but, because of privacy reasons, is unable to audit the finances of the student's family. *I would call this adverse selection since the family financial status is not in the control of the student. The term is a little odd since, in fact, we probably would predict no real "selection", just that both students with true need and other students would likely apply. In theory, you could call this moral hazard I guess. The University would like to ask students to tell the truth about their financial status but without monitoring, it is not in the private interest of the students to reveal whether they actually need aid or not.*

2) Suppose you are in the business of buying old Miro prints. You know that t about 25% of the prints in circulation are fakes and worth $10. The others are worth $1000 to you. You cannot tell them apart i) Assuming you are the only buyer around, what would you be willing to pay for a print assuming that you get most prints because they are part of estates that have to be liquidated (for example, they usually belonged to people who have died and whose will instructs that the prints be sold in order to create cash to distribute to the heirs.) *The fact that the prints come "exogenously" as part of an estate, means there is less selection of what type of prints come on the market. Thus, you can reasonably expect to get fakes roughly in the same proportion as in the marketplace. So, on average, the prints are worth to you $10*.25+$1000*.75=$752.50* ii) Now suppose a rival expert sets up business. This rival is a true expert and can tell fakes from the real thing. She offers $900 for prints. What price should you charge now? Why? *The rival serves the function of skimming off all the good prints. You know that if she is paying $900, and she can tell which prints are fakes, then she must be buying the true prints. The answer will depend somewhat on where you assume you are competing. If you assume you are competing with the expert head on head, then you are buying genuine prints and your max price should be $1000. If you assume you are competing in a venue away from the expert, you can assume that anyone with*

genuine prints will go to the expert. That means most of the prints that come to you must be the fakes. So the most you should be willing to pay is $10.

3) Current health insurance policies often include both a deductible (where the first, say, $500 of health expenses must be paid by the client) and a co-pay (where a client pays some proportion, say, 20% of the medical bill.) What are the features of private information these conditions are attempting to address? How do they do this? *Co-pays are a natural way to deal with moral hazard issues. If patients have to bear some of the costs of using medical services, then they will be less likely to use them frivolously. Deductibles in part address the non-insurance part of medical coverage. But they are also ways of addressing adverse selection. People who have private knowledge that their health status is good, will often be more willing to accept policies with high deductibles in return for lower premiums.*

4) Suppose you are the president of a hand-crafted jewelry co-op. You have about a thousand members. Around half of these members are talented, the other half are not. You cannot tell them apart. They provide you with their products and you sell them. You can either pay them a flat fee of $50 per piece or a percentage (60%) of the total price that you are able to get for the piece (that is, a "consignment" program). The talented makers can expect their product will sell for a price of $100 but this price is uncertain so only about half of them choose to sell on consignment. None of the untalented ones are willing to sell on consignment.

   i) When a member chooses the $50 per piece option, what probability should you assign to the member being talented? *All the untalented ones select this option (500) and half of the talented ones (250) for a total of 750. Thus 250 out of 750 are talented or about 33%.*
   ii) When the member chooses the consignment option, what probability should you assign to the member being talented? *The only ones who choose this option are talented so once the consignment option is selected you should be 100% confident this is a talented artisan.*
   iii) In terms of some terminology in our lectures, what phenomenon of the members behavior is being observed? *A variety of issues that we discussed come up. You can think of this as an adverse seleciton problem where either some screening or signalling is occurring. Because talented experts do not fully separate, this is an example of "semi-separating" behavior. The talented partially separate into the consignment option.*