

Prof. Bryan Caplan  
bcaplan@gmu.edu  
http://www.bcaplan.com  
Econ 812

### HW #1 (please type all answers)

1. (1 page, double-spaced) Analyze the Kaldor-Hicks efficiency consequences of FCC regulation of indecent/obscene language on commercial television relative to laissez-faire. Carefully distinguish costs, benefits, transfers, and deadweight costs.

The primary cost is the loss of consumers' surplus of individuals who enjoy indecent/obscene language. Either they watch shows that they like less, or else they abandon television entirely; in both cases consumers' surplus falls. There are additional losses of producers' surplus insofar as entertainers actually enjoy using indecent/obscene language. You might also consider the extra search costs of advertising to consumers of indecent material.

On the other hand, there are benefits to uptight viewers who are willing to pay to avoid exposure to indecent material. The size of these losses depends heavily on the details. Do the viewers simply dislike viewing indecent material themselves? In that case, the losses will probably be small because they can simply not watch; only if they accidentally flip onto an indecent moment will they suffer. On the other hand, the viewers might dislike the fact of *anyone* viewing obscene material.

Regulation clearly transfers income from those who like indecent material to those who do not. There are deadweight costs insofar (as seems probably to be) the willingness to pay to see indecent material greatly exceeds the willingness to pay to eliminate indecent material.

2. (1 page, double-spaced) From the standpoint of Kaldor-Hicks efficiency, answer Landsburg's question: "Do we need more illiterates?"

Yes, I would say that we do need more illiterates. The benefits of literacy are basically internalized: The illiterate are less productive, and accordingly earn far less income. The externalities are unclear - the truly illiterate could not read a ballot and therefore could not easily skew policy in an inefficient direction. In spite of this, literacy is heavily subsidized. Heavy subsidies to an activity without significant positive externalities is likely to be highly inefficient. Insofar as the education is worth the costs, people would pay for it themselves. Thus, we likely have too few illiterates rather than too many.

3. (half page) List 4 of your beliefs - *easily verified in an atlas or other reference source* - that you hold to be 75% probable (prior to verification). In each case, indicate whether you were right, along with the reference source. Summarize your findings in a table. How many times were you right? Are you over- or under-confident?

| Belief w/p=.75 (for year 2000)                           | Reference  | Right? |
|--|------------|--------|
| Population of Pakistan exceeds population of Bangladesh. | www.un.org | y      |
| Population of Canada exceeds 25 M.                       | www.un.org | y      |
| Population of Russia exceeds population of Pakistan.     | www.un.org | y      |

|  |            |   |
|--|------------|---|
| 2050 estimate of Mexico's population is less than 170 M. | www.un.org | y |
|--|------------|---|

This is hardly enough data for a serious statistical test, but the evidence is consistent with under-confidence on my part.

4. (half page) Pick an article off of Jstor (<http://www.jstor.org>) on some topic that interests you. What prior probability do you assign to the author(s)' thesis? Use Bayes' Rule to calculate your posterior probability after examining the article's evidence. Explain your calculations.

I looked at: Butcher, Kristin, and David Card. 1991. Immigration and Wages: Evidence from the 1980's. American Economic Review, Vol. 81, No. 2, Papers and Proceedings, pp. 292-296.

This piece analyzes the effect of immigration on wages, their thesis being that there is no connection. My prior probability for this thesis is .2 - I expect the standard rule that increased labor supply reduces wages to hold, though I am admittedly less certain than usual because a more efficient division of labor might counterbalance this effect.

My  $P(\text{BC findings}|\text{immigration-wage connection exists})=.45$ ; my  $P(\text{BC findings}|\text{connection does not exist})=.55$ . Using Bayes' rule:

$$P(\text{no connection}|\text{BC findings}) = \frac{.55 * .2}{.55 * .2 + .45 * .8} = .234.$$

5. (half page) "All men are so detestable in my eyes  
I should be sorry if they thought me wise."  
Moliere, *The Misanthrope*

Analyze this famous line using Bayes' Rule. Specifically, under what conditions would it make sense to become *more* confident when you learn that other people disagree with you? (Hint: Prove a relationship between  $P(\text{I'm right})$  and  $P(\text{I'm right}|\text{others disagree})$ ).

We want to determine when  $P(\text{I'm right}|\text{others disagree}) > P(\text{I'm right})$ . This in turn depends on  $P(\text{others disagree}|\text{I'm right})$ ,  $P(\text{others disagree}|\text{I'm wrong})$ , and  $P(\text{I'm right})$ . Formally, we must find out under what conditions:

$$P(R | D) > P(R)$$

Using Bayes' Rule:

$$\frac{P(D | R)P(R)}{P(D | R)P(R) + P(D | \sim R)(1 - P(R))} > P(R)$$

Dividing through by  $P(R)$ , and multiplying both sides by the left-hand side's denominator:

$$P(D | R) > P(D | R)P(R) + P(D | \sim R)(1 - P(R))$$

Rearranging terms:

$$P(D | R)(1 - P(R)) > P(D | \sim R)(1 - P(R))$$

Dividing both sides through by  $(1 - P(R))$ :

$$P(D | R) > P(D | \sim R)$$

Thus, it makes sense to become more confident when others disagree with you so long as they are *more* likely to disagree with you when you are *right* than they are to disagree with you when you are *wrong*!