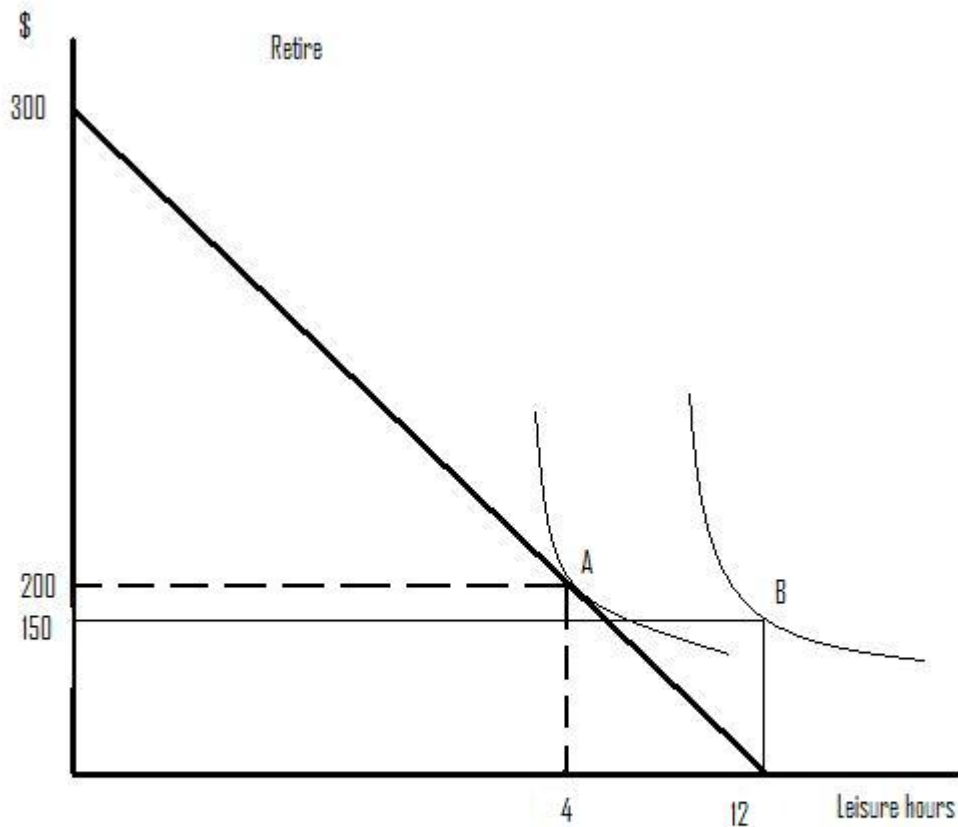
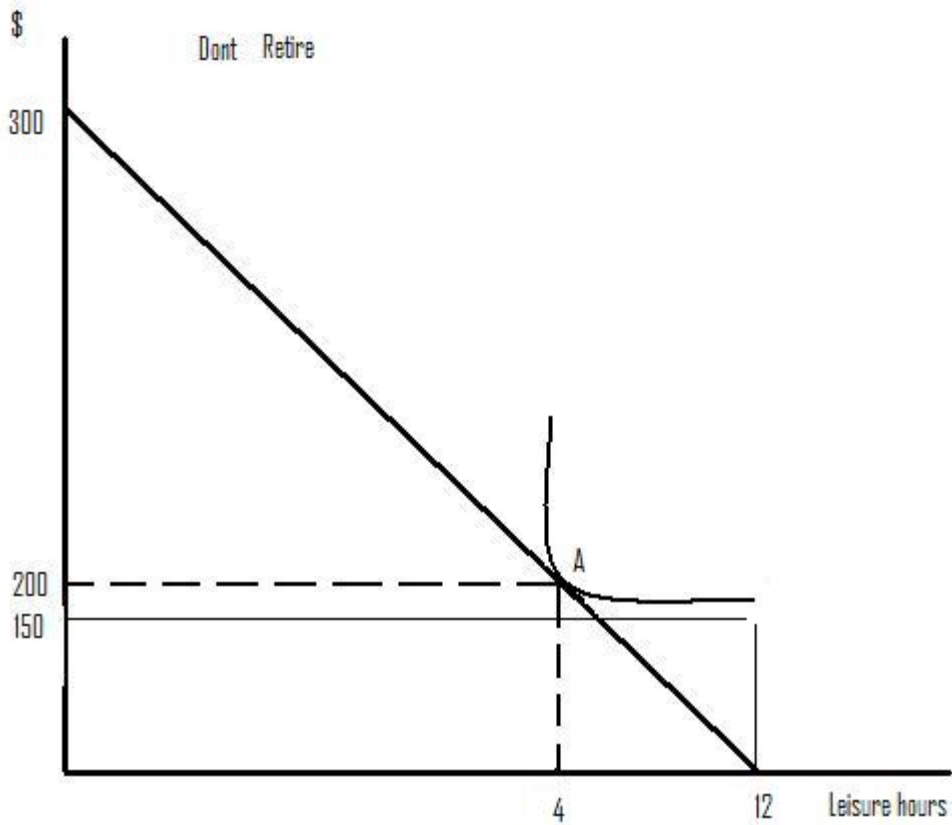


Problem Set #1, Answer Key
October 23, 2009

1. Oscar the Grouch is about to turn 55, at which point he becomes eligible for retirement. He currently earns \$25 per hour and chooses to work 8 hours per day (he can choose to work up to 12 hours per day).
- a. If the retirement package offers him \$150 per day if he resigns from Sesame Street, should he retire?

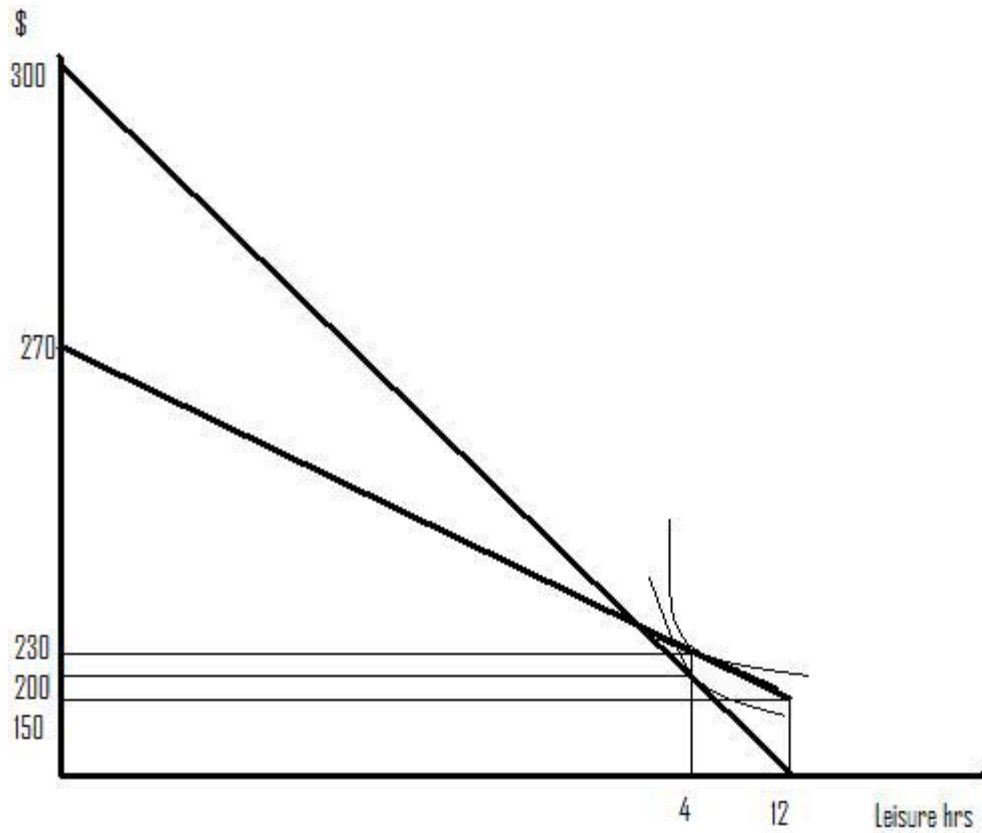
1a) Oscar should retire if his preferences are as such: If he retires, he gets 12 hrs leisure and \$150. If he works, he gets \$200 and 4hrs of leisure.



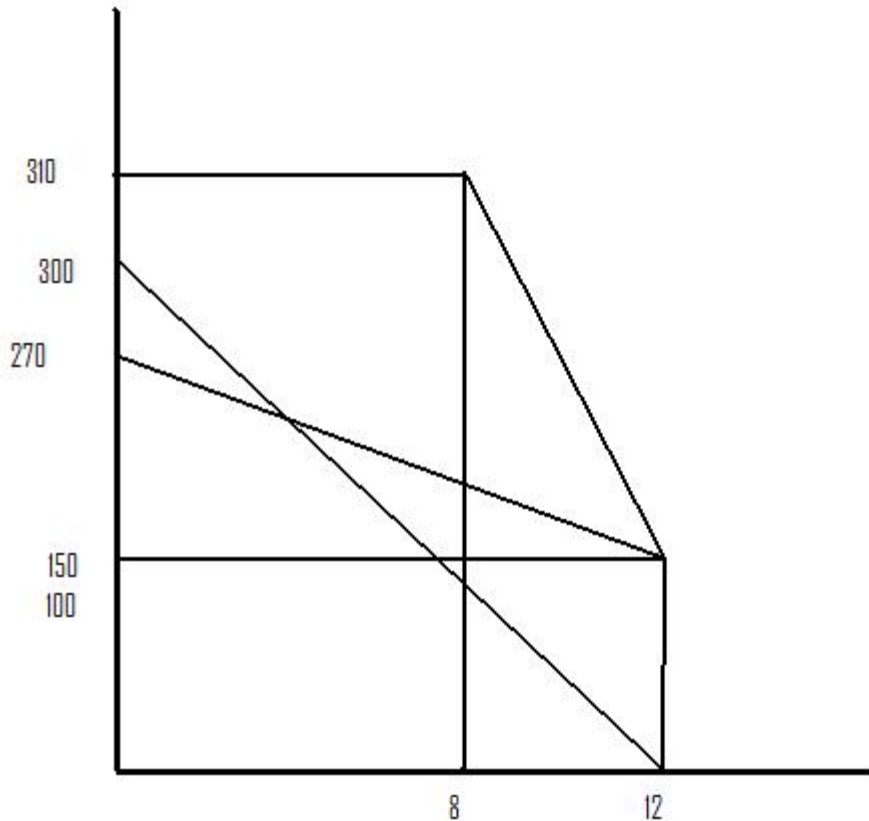


- b. Alternatively, he could retire from Sesame Street, collect his pension, and become a greeter at Wal-Mart at an hourly wage of \$10. Is this option attractive to Oscar? If so, will he work more or less than 8 hours per day? Why? If not, why not?

The new budget line is above the old budget line in the relevant range. He may retire and not work at all, or he may retire and work at walmart. If he works at walmart, he will choose to work less than 8 hours because income and substitution effects go in the same direction.

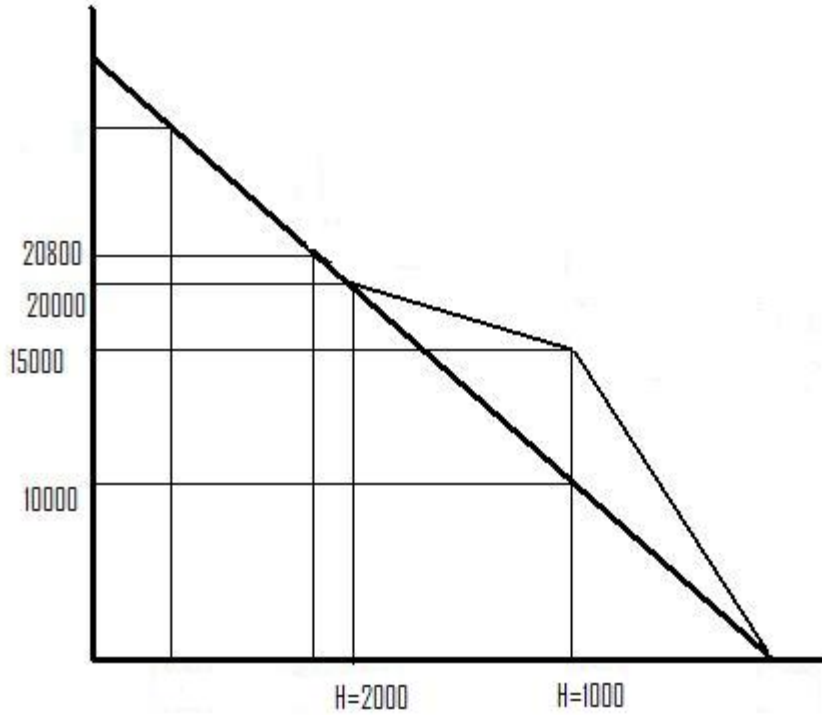


- c. Just before Oscar has decided what to do regarding retirement, Barney offers him a minor role on his show. Barney tells Oscar that he can choose to work for any amount of time between 0 and 4 hours per day at an hourly wage rate of \$40. Should Oscar retire from Sesame Street and take Barney up on his offer? If so, how many hours should he choose to work and why? If not, why not?



Should Oscar take Barney's offer: He could retire and not work or he could retire and work for Barney. Given the high wage rate, it's more likely he will work for the purple dinosaur. Barney's offer dominates both Sesame Street and Wal-Mart's offer.

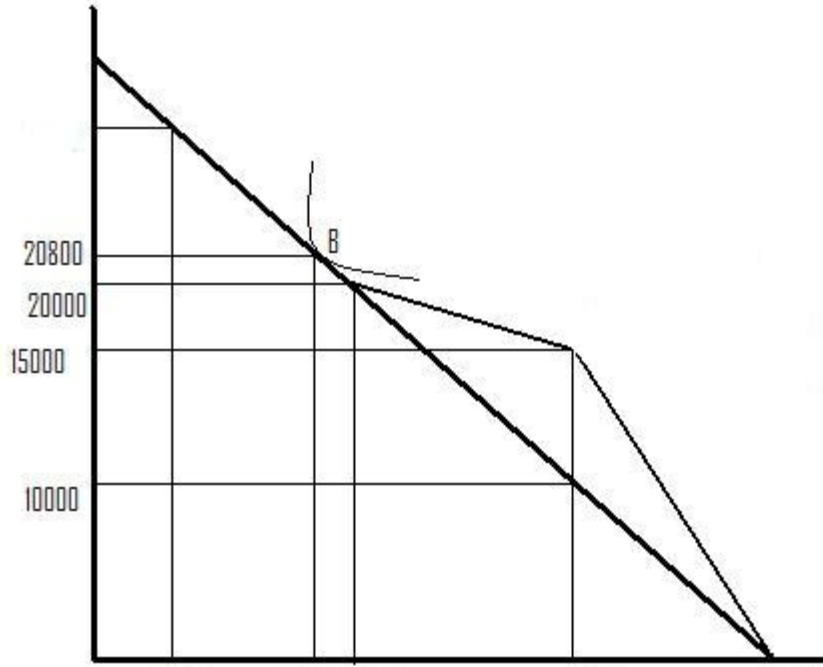
2. 2a) The government of Oz institutes the following Earned Income Tax Credit (EITC) program. For every dollar you earn, up to a maximum of \$10,000, the government will increase your wage by 50%, for a maximum subsidy of \$5,000. For every dollar you earn above \$10,000 the government reduces the subsidy for \$0.50 until the subsidy hits \$0. Consider a person who earns \$10 per hour. Assume that people can choose between labor and leisure over 16 hours per day (sleep must take 8 hours).
 - a. At how many hours of work does the subsidy hit zero?



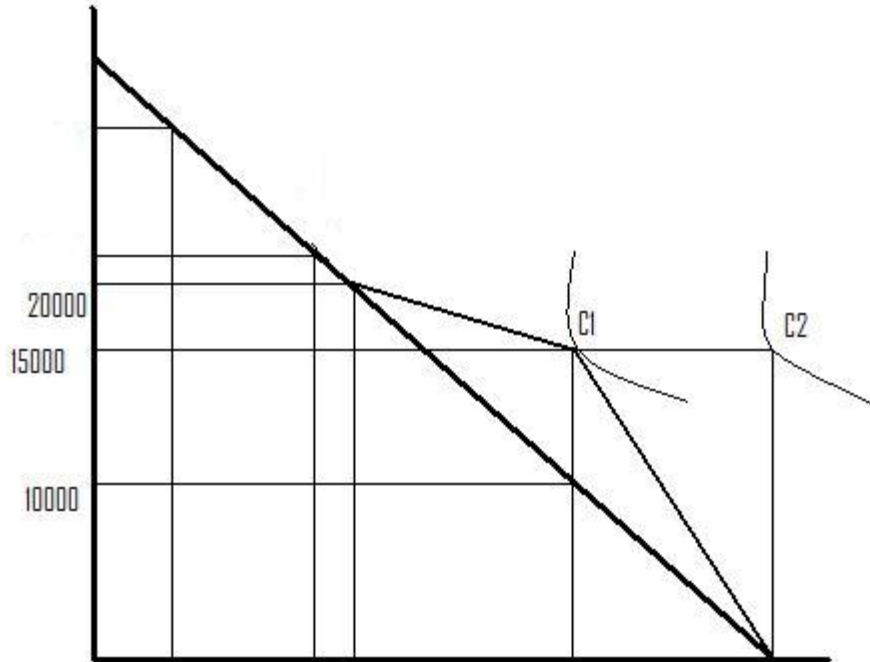
The max subsidy occurs at $H(\text{ours}) = 1000$, the subsidy hits zero after another 1000 hours, that is 2000 hours total. Max subsidy: $10.00 * (+).50 * H = 5000$ then $H_1=1000$.
 Min subsidy: $10.00 * (-).50 * H = 5000$ then $H_2=1000$

- b. What impact does the EITC program have on the labor supply decision of a person who earns \$10 and chooses to work 8 hours per day 5 days per week before EITC was introduced?

Depending on preferences, she could work fewer hours and get the EITC, or she could work the same and not get the EITC



- c. For a person earning \$10 per hour who chooses to work 1000 hours per year under EITC, what impact does the institution of welfare (“old” welfare, no work requirement) at \$1250 per month have on the hours of work per year that she chooses to supply?



2c) working 1000 hours a year at 10 dollars an hour gives a person (under EITC) 15000 a year. If welfare is introduced at 1250 a month (and assuming someone can be on welfare for a year) their income given no work at all is 15000; this being the case, she will choose to supply no hours of work.

3. Among single, college-educated women aged 22-25, average annual hours worked is 2,160 and the average wage is \$22.50/hour. If the average wage increases to \$25 per hour, average annual hours worked increases to 2,340.
 - a. What is the elasticity of labor supply for this group of workers as a whole?
 - b. Most studies find that married women have a labor supply elasticity greater than 1. Explain the difference between your answer in part (a) and the result for married women.

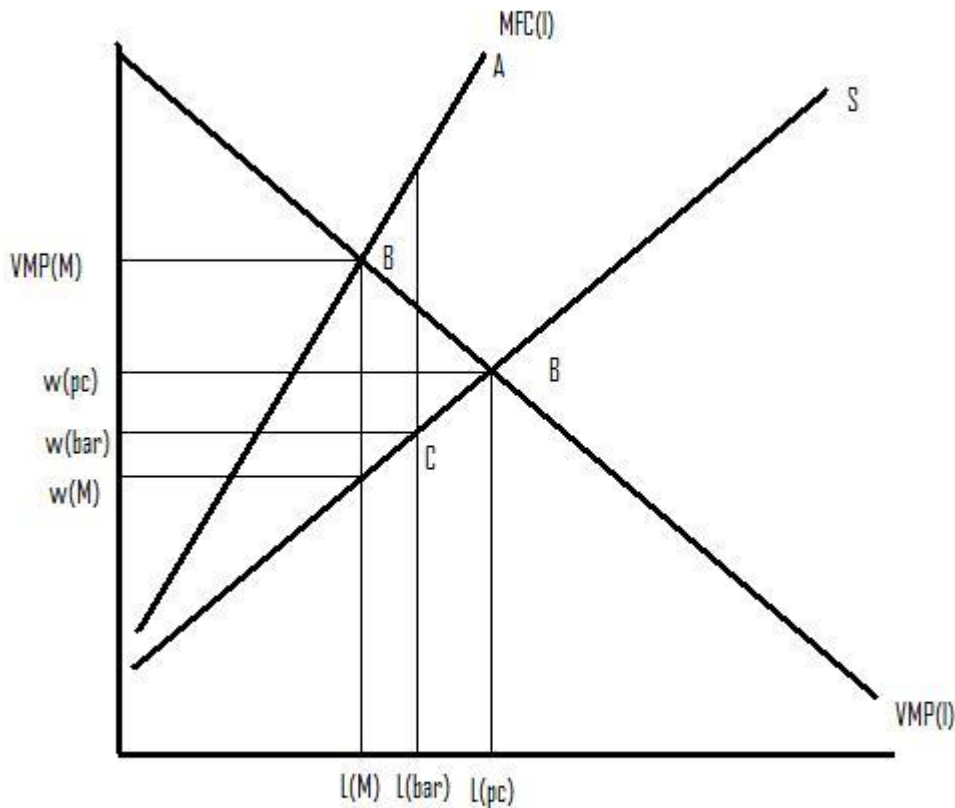
3a) $\% \text{ change in hours} / \% \text{ change in wage} = \text{elasticity of labor}$ so, $.083 / .11 = .75$ is the elasticity of labor.

3b) Married women have a more elastic labor supply curve because they may be able to rely on the income of their spouses.

4. Consider monopsony.

- Draw the labor demand curve for a monopsonist (hint: this is somewhat a trick question).
- In a “labor supply/labor demand” graph, compare the wage/employment outcome of monopsony to perfect competition. Are workers better off or worse off under monopsony?
- In the monopsony case, introduce a binding minimum wage. What happens to employment?

4a) Note: the monopsonist picks both w^* and E^* , so there is no labor demand curve (as defined for the firm that is perfectly competitive in the factor market).



4b) In monopsony the wage and employment are lower than in a perfect competition, workers are worse off under monopsony.

4c) With a binding minimum wage ($w(bar)$), employment rises under monopsony.

5. Consider the labor market for public school teachers. Teachers have preferences over their job characteristics and amenities.

- a. One could reasonably expect that high-crime school districts pay higher wages than low-crime school districts. But the data consistently reveal that high-crime school districts pay lower wages than low-crime school districts. Why?
- b. Does your discussion suggest anything about the relation between teacher salaries and school quality?

5a) High crime school districts have a lower tax base, providing fewer funds to pay teachers. The theory of compensating wage differentials takes all other characteristics as given (or fixed) when considering the relationship between pay and risk. In this case, other characteristics are varying, beyond pay and crime (the tax base and ability to pay).

5b) "School quality" is a complicated concept. Here, quality can mean low crime, ample tax base, well-paid teachers and quality resources. This suggests a positive relationship between teacher salaries and school quality.