Solutions: Midterm Exam

Name_____

Student #_____

Economics 471 University of Victoria - Fall 2019

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The midterm exam consists of **two** agree/disagree questions and **two short-answer** style questions. There will be a total of 60 marks for the exam. Each of the agree/disagree questions is worth 10 marks. Short-answer questions account for the remaining 40 marks. Be sure to answer each of the questions in full, carefully labelling all graphs that may be used in answering.

-- You will be given **50 minutes --**

Good Luck!!

PART I: AGREE/DISAGREE

State whether you agree or disagree with each of the following statements. If you agree with the statement, explain why you agree, and if you disagree, explain why you disagree (include the correct statement in your answer). I encourage you to illustrate your answers using diagrams where appropriate. Each question is worth **10 marks**.

1. Because many of the services provided by the public sector are considered necessary, labour demand curves for workers in the public sector are more inelastic. However, differences in the elasticity of demand for labour between the public and private sectors, by themselves, are not sufficient conditions for a wage differential between the two sectors.

Agree.

The fact that many public services are considered essential results in demand curves that are fairly inelastic. Economic theory tells us that when the demand for output is inelastic the demand for labour will also be more inelastic (Marshall's Rules). This is because firms are able to pass along increases in the price of labour to consumers in terms of higher prices without affect the demand for output much. (i.e. the output effect is relatively small).

However, an inelastic demand for labour alone is not enough to permit differences in wages across market sectors. In a perfectly competitive environment wages will be equalized across sectors regardless of the relative elasticities of labour demand. An inelastic demand curve simply allows for increases in wages without much of an impact on employment in the case where workers (or Unions) are able to bargain for higher wages. These higher wages require some form of non-competition. Factors such as a political, rather than a profit constraint, unionization and a competitive floor but not a competitive ceiling all provide a form of non-competition and explanations for the apparent difference between wages paid in the public sector with those paid in the private sector. The public sector is not generally profit constrained in the usual way. Governments are typically politically constrained rather than profit constrained and political constraint tends to be less binding. Governments answer to taxpayers and taxpayers are diffuse and apply pressure to the government only every few years. In addition, the public sector is characterized by high rates of unionization and, while economic forces ensure that below market wages are not paid, they do not preclude the payment of wages that are higher than market wages.

2. Nick and Jane are married. They currently reside in Toronto and are deciding what to do with the last two periods of their life. Nick's will earn \$200,000 in the first period and \$150,000 in the second period if he stays in Toronto, and Jane will earn \$150,000 and \$100,000 respectively in the two periods in Toronto. They are contemplating moving to Victoria, where in the first period both will be unemployed but their combined income in the second period will equal \$600,000. The couple's cost of moving is \$10,000. The interest rate is 10 percent.

Comparing the present value of the costs of moving to the present value of the benefits suggests that the couple should move to Victoria.

PV of Cost: 360,000 + 0 = \$360,000

PV of Benefit: $0 + \frac{350,000}{1.10} = $318,181.82$

Thus, the PV of costs are higher than the PV of benefits by \$41,818.19.

Nick and Jane should stay in Toronto.

Notice that this is equivalent to comparing the PV of income between the two cities. You could use this method to check your answer. However, you were asked to compare the PV of costs to the PV of benefits.

PV of income earned in Toronto: $350,000 + \underline{250,000} = \$577,272.73$ 1.10

PV of income earned in Victoria: $-10,000 + \frac{600,000}{1.10} = $535,454.55$

PART II: SHORT-ANSWER QUESTIONS

1. [20 marks] In the typical signalling model, it is assumed that the costs of acquiring an education are higher for low ability than high ability workers. Suppose that the government steps in and subsidizes low ability workers for the higher costs they incur in getting an education (such as giving everyone who has been in university for 4 years a degree, regardless of the person's performance in the classroom).

a) Discuss what will happen to the signalling value of a person's education under this scenario.

If the government subsidizes schooling so that the cost of schooling is the same for all workers, then the signaling value of schooling is lost.



Costs will fall for the low ability workers until they are the same as those for high ability workers. Thus, all workers in this example will find it profitable to obtain y* years of schooling. Employers will no longer find that y* is a credible signal of high ability.

b) Can there be a separating equilibrium in this education/labour market? Explain.

There cannot be a perfectly separating equilibrium because all workers will have the same incentive to obtain the same amount of schooling. As long as the costs are the same for the two groups of workers there will be no wage mechanism (set of beliefs) that will allow for a separating equilibrium. See the diagram above.

2. [20 marks] Suppose that a worker's skills can be summarized by the number of efficiency units she owns and that the distribution of efficiency units in the population is such that worker 1 has one efficiency unit, worker 2 has two efficiency units, and so on. There are 100 workers in the population of Neolandia.

In deciding whether to migrate to Canada, Neolandians compare their weekly earnings at home (w_0) with their potential earnings in Canada (w_1) . The wage-skills relationship in each of the countries is given by:

 $w_0 = 600 + s$ $w_1 = 500 + 3s$ where s gives the number of efficiency units that the worker has.

a) Assume that there are no migration costs. What is the emigration rate from Neolandia (that is, the fraction of Neolandian population that moves to Canada)? What is the average number of efficiency units among immigrants? Is the immigrant flow positively or negatively selected?



The earnings – skill lines give the payoff to skills in Canada and Neolandia. In this case the payoff to skill is higher in Canada. Workers will migrate to Canada whenever Canadian earnings exceed those in Neolandia. Because of this, workers with skills greater than S* will migrate and those with less than S* will not. The selection is positive.

To solve for S^* set 600 + S = 500 + 3S2S=100 $S^*=50$ **b**) Suppose that Canada enacts legislation granting all workers, including newly arriving immigrants, a minimum income floor of \$625 dollars. Using the Roy model show how this type of welfare program influences the worker's incentive to migrate to Canada. Does this welfare program change the selection of the immigrant flow? (ignore issues that may arise regarding how the welfare program is to be funded)



The new diagram will look as follows:

To solve for S_b set 625 = 600 + S

Sb=25

Thus, there is both positive and negative selection. The average efficiency units among movers falls to 54.6.

End of Exam