University of Ottawa
Department of Economics

ECO2114A

Second mid-term examination

Professor David Gray Fall 2009

You may not consult with any written documents whatsoever, and no conversation is permitted while the examination is in progress. It is forbidden to look at other students' papers. There are 25 multiple choice questions and 25 points worth of short answer questions. For the multiple choice questions, it may not necessarily be the case that four of the responses are totally wrong, and one of them is unambiguously correct. In such situations, select the best answer. Respond to the multiple choice questions on the scan-tron sheet. Please grid in your name and your student number by filling in the appropriate ovals in each column. You must grid in the ovals below each digit of your student number, and below each letter of your name. Respond to the written questions in the examination booklet.

Part A: Multiple choice questions

1. Assume that at the wage rate of $12 per hour, a firm is hiring 150 hours of labour per week. If the wage elasticity of labour demand is -0.67, how many hours of labour will the firm add if the wage decreases by $3 per hour? Use the starting point of (150, 12) as your base point.

a) Indeterminate
b) 25 hours per week
c) 0 hours per week
d) 10 hours per week
e) 50 hours per week

B – the % change in W is 3 / 12 = 1 / 4. Multiply that by the WED (= 2 / 3) to get the % change in the quantity demanded of labour = 2 / 12 = 1 / 6 = 14 %. 17 % of the original quantity demanded of labour of 120 = + 25.

2. Consider the model for the derivation of the demand for labour in a long-run context. In equilibrium, which of the following statements is true?

a) The firm is not necessarily maximizing its profits
b) The price of labour must necessarily be equal to the price of capital
c) If labour is twice as expensive per unit than capital, then on the margin, labour must be twice as productive as capital
d) At any other level of labour input, the firm must be making losses
e) $MPP_N * W = MPP_K * r$, where the MPP is the marginal physical product, r is the price of capital, and W is the wage level.

C – A is totally wrong. For E and B, see the equilibrium condition. For D, the firm could still be profitable, but it would not be maximizing profits.

3. The primary reason why workers in the fast food industry tend to be poorly paid is that:

a) The demand for the product that they produce is quite price elastic, making the demand for labour wage elastic
b) It is easy to substitute capital for labour in the industry, making the demand for labour wage elastic
c) Labour costs comprise a large share of the employer's expenses, making the demand for labour wage inelastic
d) These workers collect economic rents (i.e. they receive more than their reservation wages).
e) These workers are seldom unionised

A – the opposite of B might be true. C would be true if it said elastic. D is false. While E is true, a union would not do them much good in light of the elastic WED.

4. If the employer is a monopolist in the output market:

a) There cannot be a monopsony in the labour market
b) The demand for labour is less elastic than it would be if the firm operated in a competitive output market
c) The marginal labour cost curve facing the firm lies above the firm's supply curve for labour.
d) The firm's demand curve for labour is identical to the case where the firm is a competitor in the output market
e) None of the above

B – A could be true. C would be true if the firm were a monopsonist. D is totally wrong.

5. The empirical evidence that exists concerning the magnitude of the wage elasticity of labour demand (before taking the absolute value) indicates that it tends to be:

a) Negative and elastic
b) Negative and inelastic
c) Negative and unitary elastic
d) Positive and inelastic
e) Inconclusive

B – this is in the text, in the slides, and I have mentioned it I class

6. For a firm that is a competitor in the output market, the short-run demand function (and curve) for labour does depend on:

a) The price of capital
b) The market demand for the final product
c) Hicks' laws
d) The reservation wage of the workers
e) The wage level

B – A is wrong, because if there is a change in either the wage or the price of capital, we will move along the N^d curve. C involves the determinants the WED. D determines the quantity supplied of labour. E is wrong for the same reason as A.

7. The substitution effect of a wage change implies that:

a) Firms hire more of the factor that has become less expensive and less of the factor that has become more expensive.
b) the costs of the firm move in the same direction, which brings about a change in the level of output
c) The stock of capital is fixed in the short run

d) The wage elasticity of labour demand must be elastic
e) None of the above

A – B refers to the scale effect. C is true, but is irrelevant. D is not necessarily true.

8. The determinants of the wage elasticity of demand for labour include all of the following except:

a) The availability of substitute inputs
b) Whether or not the supply curve of labour facing the firm slopes upward
c) The elasticity of demand for output
d) The ratio of labour cost to total costs of production
e) All of the above are determinants

B – B determines whether the labour market is competitive or not.

9. In determining the competitiveness of Canadian manufacturing relative to that of US manufacturing, which of the following variables IS an ingredient in the generation of unit labour costs?

a) the productivity of the labour forces in the two countries
b) the wage elasticity of demand for labour
c) whether or not the firms are hiring labour such that the marginal revenue product equals the wage
d) the wage elasticity of supply for labour
e) All of those four factors play a role

A – B does not really matter, nor does D. C indicates whether or not firms are maximizing profits.

10. Which of the following statements regarding the demand for labour is false?

a) If a firm is a monopolist in the product market, the firm's demand for labour is the same as the market demand for labour
b) If a firm is a monopolist in the product market, the firm's demand curve is less elastic than it would be if the firm were operating in a perfectly competitive product market
c) If a firm is a monopolist in the product market, it may or may not operate in a competitive labour market.
d) If a firm is a monopolist in the product market, it may still behave as a wage taker in the labour market
e) all of the above are true

A – A firm can be a monopolist in the product market but compete with many other firms in the labour market, like I say in C. D says almost the same thing as C. (On your version of the exam, A was not stated well, so I think that I will give everyone credit

for this question.)

11. What is the primary difference between a monopsonist and a firm which operates in a perfectly competitive labour market?

a) The demand curve for labour in the case of the monopsonistic is the horizontal summation of the demand curves for all of the firms that are operating in that market
b) The monopsonist faces an upward sloping supply curve for labour
c) The demand curve for labour that the monopsonist has is less elastic
d) The monopsonist hires such that the marginal revenue product of labour is equal to the marginal labour cost, but the non-monopsonist does not.
e) The monopsonist will typically end up hiring more workers

B – A cannot be right, because a monopsonist implies that there are no other firms that demand labour in this market. C might be true, but that is not what distinguishes them. D is false – all firms behave that way. E is totally wrong, as the opposite is true.

12. Consider the figure that is provided on the last page. The equilibrium wage and employment levels for the monopsonist are:

a) VMP_W and N_M
b) W_M and N_M
c) W_C and N_C
d) W_M and N_C
e) W_C and N_M

B – this question is a dead giveaway

13. Consider the figure that is provided on the last page. The equilibrium wage and employment levels for the firm in a perfectly competitive labour market are:

a) VMP_W and N_M
b) W_M and N_M
c) W_C and N_C
d) W_M and N_C
e) W_C and N_M

C – this question is a dead giveaway

14. Within the framework of competitive labour markets, what is the expected effect of the minimum wage?

a) To make the targeted workers better off
b) To reduce employment below the level that would otherwise exist

c) To make the workers who are retained less productive than what would otherwise be the case
d) To raise consumption spending throughout the economy by raising wages for low-paid workers
e) To cause a shortage of workers at the going transactions wage

B – A is the intended effect. C does not make sense. D is the argument favoured by proponents of the minimum wage, but most economists reject it. The very opposite of E applies.

15. Which of the following statements is true? If a firm is operating in a competitive labour market,

a) The supply curve of labour facing the individual firm is horizontal at the market wage
b) The demand for labour is the marginal physical product of labour curve
c) The marginal cost of labour curve lies above the labour supply curve
d) It must also be operating in a competitive output market
e) None of the above

A – B is wrong: N^d = MRP = MPP*P, not MPP. For C, MC of labour coincides with the horizontal Ns curve. D is not necessarily true.

16. One way to evaluate *empirically* the impact of the minimum wage on employment is to:

a) estimate an equation for aggregate employment that has the aggregate wage as the independent variable
b) Observe and record what happens to the employment of low-wage workers every time there is an increase in the minimum wage
c) Appeal to the theory of labour demand, which says that all other factors held constant, an increase in the minimum wage unambiguously reduces employment
d) Compare what happens to the employment of low-wage workers in one sample consisting of firms that were subjected to an increase in the minimum wage to a comparable group of firms that were not
e) survey employers in order to ask them whether they laid off employees as a result of the increase in the minimum wage

D – A is wrong because that strategy will not hold the other factors constant. B is wrong for the same reason. C makes sense, but that is not an empirical strategy. E is not considered to be a scientific method, in part because we are relying on self-reported information.

17. What has empirical research on the incidence of the payroll tax found?

a) That most of the burden falls upon workers.
b) That there is no burden at all because the tax is free
c) That most of the burden falls upon firms
d) That the burden is shared approximately equally between firms and workers
e) That payroll taxes are 'job killers'

A – B is a ridiculous statement. D is a theoretical possibility. E is not correct, although they certainly do not lead to job creation.

18. Under what circumstance would the burden of the payroll tax fall most heavily on firms? WED stands for the wage elasticity of demand, while WES stands for the wage elasticity of supply.

a) a perfectly inelastic demand for labour and a perfectly inelastic supply of labour
b) an inelastic WED combined with an inelastic WES
c) an elastic WED combined with an elastic WES
d) an elastic WED combined with an inelastic WES
e) an inelastic WED combined with an elastic WES

E – this means that firms are unresponsive to any attempt to get them to pay the tax (through not reducing wages), while workers are responsive to any attempt to get them to pay the tax through lower wages.

19. The textbook presented a real-world case that illustrated monopsony. Which labour market did it involve?

a) major league baseball players or hockey players
b) the local labour market in a town dominated by a single employer such as a mine
c) nurses
d) university professors
e) none of the above

B – see page 224.

20. The essence of human capital theory is that:

a) Firms spend money on their capital stock and equipment in order to make labour become more productive.
b) Investments are made in human resources so as to improve their productivity and therefore their earnings.
c) All workers who want to increase their salary should obtain a university diploma.
d) Workers invest in it in order to send a signal to potential employers regarding their true productivity levels.
e) None of the above

B – A refers to physical capital. C is not necessarily true – one has to weight the costs and the benefits. D is the signalling teory, which is an alternative to human capital theory.

21. The article authored by Moussaly-Sretgieh and Vaillancourt plus the evidence contained in the textbook indicate that the magnitude of the private rates of return to a obtaining a bachelor's degree in Canada are:

a) slightly negative
b) between 0 and 5 %
c) between 5 % and 10 %
d) between 10 % and 20 %
e) there is no conclusive evidence

C

22. The slope of the 'age-earnings' profile reflects:

a) the fact that earnings tend to increase with age but at a decreasing rate
b) the starting wage for worker at the point of entry into the labour market
c) the wage premium that educated workers receive relative to their less-educated counterparts of the same age
d) Older, more experienced workers have higher wage profiles than younger workers
e) All of the above statements apply

A – B refers to the intercept. C refers to the vertical distance between any two age-earnings profiles. D is false – older workers and younger workers are on the same profile. As we move along it from left to right, workers are gaining experience.

23. The article authored by Moussaly-Sretgieh and Vaillancourt contains all of the following conclusions <u>except</u>:

a) Women tend to benefit from obtaining bachelor's degrees more than men do
b) From the perspective of the individual, undergraduate degrees tend to pay off more than graduate degrees do
c) The rate of return to investing in higher education does tend to vary by field
d) A case can be made for governments subsidizing higher education
e) The social rate or return to investing in higher education is quite low

E – the social rate of return is higher than the private rate

24. The decision for the individual to invest in human capital does <u>not</u> involve which of the following?

a) Foregone earnings

b) Projected earnings
c) The costs of tuition and books
d) the rate at which future earnings are discounted
e) the social benefits

E – The human capital model that we have covered thus far involves only choices made by the individual.

25. The human capital model has strong neo-classical underpinnings. Why might a heterodox economist disagree with this approach?

a) Because some of the predictions that flow from the model have turned out to be wrong
b) Because the predictions that flow from the model cannot be empirically validated
c) Because it is based on the assumption that most individuals have a wide degree of choice in regards to how many years of education that they obtain, and this assumption is wrong
d) Because the economic variables that play a role in the human capital model are irrelevant
e) They tend to favour the signalling theory according to which education serves as a filter.

C – the heterodox group feels that this model assumes away the phenomena that are interesting and relevant.

Part B – Short Answer Questions

Answer all of these questions in the examination booklet. The answers to all of these questions are drawn straight out of your class notes.

1. From the perspective of the workers, it is desirable for the wage elasticity of labour demand to be high or low? Explain why this is the case. (4 points)

YOU WANT FOR IT TO BE INELASTIC. UNDER THOSE CIRCUMSTANCES, EMPLOYERS ARE NOT VERY RESPONSIVE TO WAGE INCREASES OR DECREASES. IF THE WORKERS RECEIVE A WAGE INCREASE, THE QUANTITY DEMANDED OF LABOUR WILL FALL, BUT NOT BY VERY MUCH. FOR INSTANCE, IF THE WED = 0.5, AND THERE IS A 10 % INCREASE IN W, THE QUANTITY DEMANDED OF LABOUR WILL FALL BY ONLY 5 %, WHICH IS A DISPROPORTIONATELY LOW VALUE. TOTAL PAYROLL WILL ACTUALLY RISE BY ABOUT 5 %. IN CONTRAST, IF THE WED IS ELASTIC, ANY INCREASE IN W WILL PROVOKE A GREATER THAN PROPORTIONATE DECREASE IN THE QUANTITY DEMANDED OF LABOUR, AND TOTAL PAYROLL WILL FALL. IN THIS INSTANCE, THE WORKERS WILL PAY A HIGH PRICE FOR THEIR WAGE INCREASE IN THE FORM OF LOST JOBS.

2. Without going into technical details, explain the basic idea that underlies the practice of present value discounting. Why do we bother doing it? How does it fit into the decision of whether or not to invest in human capital? (4 points)

THE BASIC IDEA IS THAT A PAYMENT RECEIVED IN THE FUTURE IS NOT WORTH AS MUCH AS A PAYMENT OF THE EXACT SAME NOMINAL AMOUNT RECEIVED TODAY. THIS IS BECAUSE NOT ONLY WILL MONEY RECEIVED IN THE FUTURE HAVE ITS VALUE ERODED BY INFLATION, BUT ALSO BECAUSE ONE CAN EARN INTEREST ON ANY AMOUNT THAT IS PAID TO YOU TODAY. PVD CONVERTS A STREAM OF PAYMENTS THAT ARE TO BE RECEIVED AT FUTURE DATES (WHICH ARE NOT WORTH AS MUCH AS MONEY RECEIVED TODAY) INTO ONE SINGLE VALUE DENOMINATED IN TODAY'S DOLLARS. THIS IS IMPORTANT FOR THE DECISION TO INVEST IN HUMAN CAPITAL BECAUSE WE HAVE TO MAKE THAT DECISION TODAY. WE HAVE TO FORK OVER MOST OF THE COSTS FOR IT TODAY IN THE HOPES OF DEFRAYING THESE COSTS WITH A STREAM OF PAYMENTS TO BE RECEIVED IN THE FUTURE. SINCE THESE BENEFITS ARE SPREAD OUT OVER A LONG PERIOD OF TIME INTO THE FUTURE, AND SINCE PAYMENTS RECEIVED AT DIFFERENT POINTS OF TIME IN THE FUTURE ARE ALL WORTH DIFFERENT AMOUNTS, WE NEED A WAY TO EVALUATE ALL OF THESE BENEFITS IN TODAY'S $ SO THAT WE CAN COMPARE THE BENEFITS WITH THE COSTS.

3. Consider the firm that is in the long-run disequilibrium situation where $MPP_N / MPP_K > W / r$, where the MPP_N is the marginal physical product of labour, MPP_K is the marginal physical product of capital, W is the wage, and r is the rate of return on capital. Explain the adjustment process by which this firm will reach its choice for the quantity demanded of labour. (4 points)

IN THIS SITUATION IT IS THE RATIOS OF THE MARGINAL PRODUCTS OF THE TWO FACTORS OF PRODUCTION THAT MATTER. THE LEVELS OF MPP_N AND MPP_K DO NOT MATTER IN AND OF THEMSELVES. ONE HAS TO COMPARE ONE FACTOR TO THE OTHER IN TERMS OF MARGINAL PRODUCTIVITY AND PRICE. MPP_N / MPP_K IS CALLED THE MARGINAL RATE OF TECHNICAL SUBSTITUTION. IF THIS RATIO IS HIGHER THAN THE RATIO OF THE CORRESPONDING FACTOR PRICES (AS IT IS HERE), IT MEANS THAT ON THE MARGIN, THE PRODUCTIVITY OF LABOUR RELATIVE TO THE PRODUCTIVITY OF CAPITAL IS HIGHER THAN THE RATIO OF THEIR RESPECTIVE PRICES. THIS MEANS THAT THE PRODUCER CAN GET MORE BANG FOR THE BUCK BY HIRING A BIT MORE LABOUR AND A BIT LESS CAPITAL. BY MAKING THAT SWITCH, OVERALL PROFITS WILL RISE. AS THE EMPLOYMENT OF CAPITAL FALLS, AND THE EMPLOYMENT OF LABOUR RISES, THE LEFT SIDE OF THAT EQUATION WILL RISE DUE TO THE CONCAVITY OF THE PRODUCTION FUNCTION (OR THE LAW OF DIMINISHING MARGINAL RETURNS). MPP_N WILL FALL, AND MPP_K WILL RISE. EVENTUALLY, EQUILIBRIUM WILL BE RESTORED, AND PROFITS

WILL BE MAXIMIZED AGAIN.

4. Consider a conventional model of labour demand and labour supply in a competitive framework. Now assume that a payroll subsidy worth T $ per worker per day is awarded, and that it is paid directly to the employers. A subsidy will have exactly the opposite impact of a tax. (5 points)

Model this change using graphical analysis. Label all curves and axes. Explain your work. Indicate the part that is received by employers (i.e. show what their benefit is, if any), and the part is received by the workers (i.e. show what their benefit is).

RATHER THAN SHOWING THE GRAPH, I GIVE YOU THE VERBAL EXPLANATION. SHIFT THE N^D CURVE UP BY T $ BECAUSE AT EACH POSSIBLE LEVEL OF EMPLOYMENT, EMPLOYERS' LABOUR COSTS PER WORKER HAVE FALLEN BY THAT AMOUNT. THE FIRMS WILL NOT BE SUCCESSFUL IN KEEPING ALL OF THE SUBSIDY BY STILL PAYING THE SAME WAGE AS BEFORE, HOWEVER. IF IT WERE TO TRY TO DO SO, THAT WOULD BRING ABOUT A SITUATION OF EXCESS QUANTITY DEMANDED OF LABOUR AT THE OLD EQUILIBRIUM WAGE. WE ARRIVE AT A NEW EQUILIBRIUM COMBINATION OF W AND N AT THE INTERSECTION OF THE SAME N^S CURVE AND THE NEW N^D CURVE. THE NEW W IS HIGHER, AND THE NEW N IS HIGHER. THE VERTICAL DISTANCE BETWEEN THE NEW W AND THE OLD W IS THE PORTION OF THE SUBSIDY THAT WORKERS RECEIVE IN THE FORM OF HIGHER WAGES. THE RESIDUAL ($T - (Wnew – Wold) = $ T – Wn + Wo IS WHAT FIRMS RECEIVE. AT FIRST THEY CAPTURE ALL OF $ T, BUT THEY LOSE SOME OF THAT AMOUNT IN THE FORM OF HIGHER WAGES THAT THEY ARE NOW PAYING. IT IS ANALOGOUS TO FIGURE 7.5 IN THE TEXT, BUT THE HIGHER N^D CURVE IS THE NEW ONE, AND THE LOWER N^D CURVE IS THE OLD ONE.

5. This question deals with the topic of wage discrimination. (4 points)

a) Define it.

TWO OR MORE WORKERS WHO HAVE THE SAME LEVEL OF INNATE PRODUCTIVITY A RECEIVING DIFFERENT WAGES.

b) We will not witness it in labour markets that are perfectly competitive. Why not?

THE FIRM CAN HIRE ALL OF THE LABOUR IT WANTS TO AT THE GOING MARKET WAGE. IT NEVER HAS TO OFFER A RAISE IN ORDER TO RECRUIT MORE WORKERS, AND IF IT TRIES TO PAY ANYONE LESS THAN THIS GOING WAGE, THAT WORKER WILL QUIT. THIS IS A CONSEQUENCE OF FACING AN INFINELY ELASTIC SUPPLY OF LABOUR. IN CONTRAST, WHEN THE LABOUR MARKET IS IMPERFECTLY COMPETITIVE, ITS LABOUR SUPLY CURVE SLOPES UPWARD, AND SO IN ORDER TO RECRUIT MORE WORKERS,

THE FIRM HAS TO OFFER A HIGHER WAGE. IT WILL WANT TO DISCRIMINATE BY NOT GRANTING THAT RAISE TO ALL.

c) Assume that you are an employer in a labour market that is not perfectly competitive, and that you have the ability to carry out wage discrimination. Explain the scheme that you would be tempted to employ. In other words, on what basis would you carry this out?

ON THE BASIS OF THE RESERVATION WAGE – PAY EVERYONE BARELY ENOUGH TO PREVENT THEM FROM QUITTING.

6. Here is the question that I promised you would be on the examination. (4 points)

a) Define the quantity of marginal labour cost.
b) Explain why in the case of a monopsony (that is incapable of carrying out wage discrimination) that the marginal labour cost curve lies above the supply curve of labour that faces the firm.

a) MLC = THE CHANGE IN TOTAL LABOUR COST OBTAINED BY HIRING ONE MORE UNIT OF LABOUR.

b) WHEN THE LABOUR MARKET IS IMPERFECTLY COMPETITIVE, THE LABOUR SUPLY CURVE SLOPES UPWARD, AND SO IN ORDER TO RECRUIT MORE WORKERS, THE FIRM HAS TO OFFER A HIGHER WAGE. IF IT CANNOT DISCRIMINATE, IT WILL HAVE TO GRANT THAT WAGE INCREASE TO ALL OF ITS WORKERS. THUS THE MARGINAL LABOUR COST INVOLVES NOT JUST PAYING THE NEW WORKERS THEIR WAGE (THAT WAGE IS GIVEN BY THE N^S CURVE), BUT ALSO A PAY RAISE TO INCUMBENT WORKERS.