

Ec317
Labour Economics
Problem Set 11

1. A firm has the possibility to hire an unskilled worker. Without additional training the worker would produce nothing. The firm can give the worker training t and a trained worker produces output $y = 80t$. (Notice: because there is only one worker here, output y is also the worker's marginal product). Each unit of training t costs $4t^2$. Suppose output is sold for a fixed price of 1.
 - (a) Suppose the worker has no possibility of leaving the firm and the firm pays the worker a wage w . How much training should the firm give the worker if the firm pays for the training? What wage should a profit maximizing firm pay this worker? Has the worker an incentive to pay for any of the training?
 - (b) Now suppose that there are many other firms which could hire this worker and training is general, so that the worker could produce the same output in any other firm. What would the competitive wage be for a worker with training t ? How much training would the incumbent firm give to this worker now if the firm pays for the training? How much training would the worker want to get if the worker pays for the training?
 - (c) Suppose again that there are many other firms which could hire this worker and training is general. In addition, assume that the worker can only leave the original firm at a cost of 100. What wage would the incumbent firm have to pay this worker to make her stay with the firm (this wage will again depend on t)? How much training would the firm be willing to give to the worker at this wage? Would the worker like to invest in more training and pay for it? How much more training?
 - (d) Again assume the same setup as in (c) but now let the cost for the worker of moving to a new employer be $40t$; i.e. it is more costly to move for a skilled worker. What is the wage and how much training would the firm be willing to give the worker now? Would the worker like to invest in more training and pay for it?
 - (e) How would your answer to (d) differ if the cost of moving to a new employer is only $20t$? Be specific about the firm's incentive to invest in training if the worker is barred from investing anything in training compared to the situation where the worker has chosen (and paid for) her preferred level of training already.
 - (f) In each of the setups here except (b) the incumbent firm has some monopsony power over the worker, because the worker cannot easily move to other firms. Compare your results to the findings of the standard Becker model which says that the worker should pay for investments in general training. When does the monopsony power of the training firm induce it pay for general training? What is the general principle embodied in your answers above about who pays for training when the labor market is not perfectly competitive?