Test 3
Economics 136 – Human Resources
Spring 2007
Prof. Julian Betts

May 30, 2007
Name: _____
Student ID _____
There are 3 written problems in this test, worth a total of 44 points. Please write neatly.
If you place the answer to a question in an odd place, such as the back of the page, please
indicate this clearly, for the sake of the graders.

If you use pencil, the exam cannot be regraded. If you do submit your test for
regrading, you must do within the time and other guidelines listed in the syllabus.

SHOW ALL YOUR WORK!
You have 50 minutes. Good luck.
For the graders:
1. _____/20
2. _____/12
3. _____/12
SUM _____/44

Please sign the following optional form if you would like us to be able to return this test
to you in a publicly accessible location.
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(Buckley Waiver)

I hereby authorize the UCSD Economics Department to return my graded final
examination/research paper by placing it in a location accessible to all students in the
course. I understand that the return of my examination/research paper as described above
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Quarter Spring_____   Course_Econ 136_____   Date_____

Instructor_____Julian Betts_____

Student ID#_____

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Signature_____

1. You are trying to set up the salary scale at your agricultural firm where there are two levels of jobs, workers and bosses. All individuals at the firm pick the same thing, avocados, and the two jobs are merely set up for reasons of motivation. It is very difficult to count the number of avocados each worker picks, but when stacked up, it is easy to see which worker's output fills a larger truck. Avocados sell for $3.00 per pound and are produced by worker i as follows:

$$q_i = m_i + e_i$$

where q is the number of pounds of avocados, m is effort, and e is a luck factor, reflecting the productivity of the avocado trees picked on a particular day, and other factors over which the worker has no control.

You are told based on the firm's past experience that if a worker is required to work at an effort level that produces 1 lb. of avocados per period he must be paid $1 to work or he will resign. If he must produce 2 lbs. he must be paid $8, for 3 lbs. $27, for 4 lbs. $64 etc. There are two workers, j and k. Each worker experiences luck, e_j and e_k, respectively. $x = e_k - e_j$ takes on values between -1/4 and 1/4 with a uniform probability distribution.

a) You know that the worker's utility depends on expected earnings per period and effort per period. Based on the payments required for each level of effort what is the worker's utility function (write as a function of E(W) which is expected earnings, and effort m). (4 points)

b) Suppose that after a trial period, one of two workers will be promoted to boss. The person with greater production will get the promotion. In this post-tournament period, the boss earns W_1 and the worker earns W_2, where $W_1 > W_2$. The two workers have identical productivity (on average) and the same utility function that you derived in part a. There are no costs apart from labor.

To ensure that both workers accept the job, you must pay an expected wage for a given level of effort to ensure that expected utility equals 0.

Solve the workers' problems and the firm's problem. DEFINE ALL NEW VARIABLES THAT YOU USE THAT ARE NOT MENTIONED IN THIS QUESTION. (16 points)

2. As the new manager of a company operating in the United States, you have looked at each worker's compensation and productivity. One problem you have noticed is that workers over aged 55 on average have a present discounted value of wages to retirement of $1,000,000 and a present discounted value of Value Marginal Product to retirement of $900,000. Based on exit interviews that your human resources department has done with workers in this age group who have quit or retired early, the present value of their best alternative activity to working for your firm is $950,000.
a) Could you fire these workers? Why or why not? Please be specific. (3)

b) Suppose instead that you decide to offer a buyout worth $B in present value terms. What is the maximum buyout that your firm could offer and make at least as much profit as if it kept these workers on until retirement? What is the minimum buyout that the workers would typically accept? Show your work. (6)

c) What buyout value B should you offer? By how much will profits change for each worker who accepts this offer? Show your work. (3)

3.a) List four characteristics of workers, their firms or industries that might make them good candidates for your firm to hire away through raiding. In each explain how a change in the given characteristic will alter their attractiveness to your firm, and why. (8)

b) Suppose that you have just successfully raided another firm and attracted one of its workers to work for your firm. What is the "winner's curse"? Explain what factors might cause this problem. For full points explain clearly "who knows what"!! (4)