

Part II (Weight=75 percent).

Answer 3 of 4 questions. Answer each question in a separate LONG booklet provided to you. Each question has equal weight within Part II.

1 . Consider the following model of employer-employee relations. Firms maximize expected profits given by:

$$\int [pg(L(p)) - w(p)L(p)]f(p)dp$$

subject to:

$$\int [U((w(p)L(p))/m) - V((L(p))/m)]f(p)dp \geq U_0$$

and

$$m \geq L(p)$$

where p is the realized price, $L(p)$ is employment when the realized price is p , $w(p)$ is the wage when the realized price is p for employed workers, $f(p)$ is the probability density function for the distribution of prices, m is the number of workers the firm attaches ex ante, U_0 is the reservation utility level firms must offer the representative worker, g is strictly concave, U is strictly concave, and V is strictly convex. Firms take prices as given but must come to terms with workers (including the number of workers the firm attaches) before the state of the world is realized.

Please answer the following questions:

- (i) Derive optimal $L(p)$, $w(p)$, and m .
- (ii) Using your answer to (i) discuss:
 - (a) Is this the first best contract?
 - (b) Does this model "explain" wage rigidity?
- (iii) Suppose that the state of the world " p " is observed by the firm but not observed by the worker ex post. To make it simple, let p have only two possible values, $p^A > p^B$ each occurring with probability 1/2.
 - (a) Derive the incentive compatibility constraint implied by this ex post asymmetric information.
 - (b) Derive the optimal contract with this incentive compatibility constraint.
 - (c) Does the optimal contract imply over or underemployment in the good state or the bad state? Discuss.
 - (d) If there is a departure from the first best symmetric information contract, discuss whether the employment fluctuations under the asymmetric information contract are helpful in accounting for observed fluctuations in employment over the business cycle.