Ph.D. Qualifying Exam- Managerial Accounting
May 9, 2007

PART 2

1. Workers in a team are organized as a team to finish tasks together. Suppose two workers form a production team. Workers are effort-aversion. If i worker puts effort ei into production, then he may receive negative utility, i=1,2. Workers of this team share the income generated by the team. But the team income depends on the effort supplied by the team-members. The owner pays Yi to reward i based on the outcome. One person cannot control the effort supplied by others, so a worker's effort supply decision by taking as given the effort contributed by the other person. The individual then chooses e to maximizes utility u(X, Y) when X=F-e, F is endowment and Y=w(e). Each individual has the utility function $u_i(X_i, Y_i)=(X_i)^2 Y_i$. The team's net income is always α times the total amount of effort contributed. Please compute the equilibrium outcome and incentive rate according to the following each condition.

    (1) There is more output per worker when a production team is formed than when individuals work independently. The interaction effect of workers' effort on outcome equals β. (10%)

    (2) Suppose a fraction of effort also determine the outcome in the next period. What is the lag effect of effort on the equilibrium outcome and incentive rate? (8%)

2. Suppose the employee is risk averse and does two different things, signified by levels of effort e1 and e2. These levels of effort are regarded as time devoted to two activities. It is time that becomes unavailable for other, more pleasant or rewarding activities. Suppose that the two activities to which the employee might contribute are cost reduction (e1) and revenue generation (e2). The costs of these two activities are: C(e1+e2). The employer measure performance by observing the

    indicators e1+x1 and e2+x2, where x1 and x2 have expected values of $\overline{x_1} \ and \ \overline{x2}$.

    Suppose that the employer pays the employee according to a linear compensation formula (w) based on the two indicators and fixed pay. W=a+b(e1+x1)+c(e2+x2). How does the incentive scheme of employee affect cost reduction? (8%)

If the cost reduction effort will has spillover benefit to the other firm, how does the spillover effect affect the choice of indicator? (8%)

3. Please explain the following term and take an example in management accounting field to express the applications of these terms.(16%)

    (1) implicit contract

    (2) opportunity cost of capacity investment

    (3) ratchet effect of performance evaluation

    (4) informativeness principle