Incentive Pay

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Pay Systems: Time Rates

- A worker is paid a time rate if she is paid a **fixed amount per period of time she works**, such as being paid an hourly wage.
- Time rates are used by firms when it is **costly or impossible to monitor the output of workers**.

Pay Systems: Piece Rates

- A worker is paid a piece rate if she is **paid according to the number of the units of output she produces**.
- Piece rates are used by firms when it is **cheap/easy to monitor the output of workers**.

Advantages:

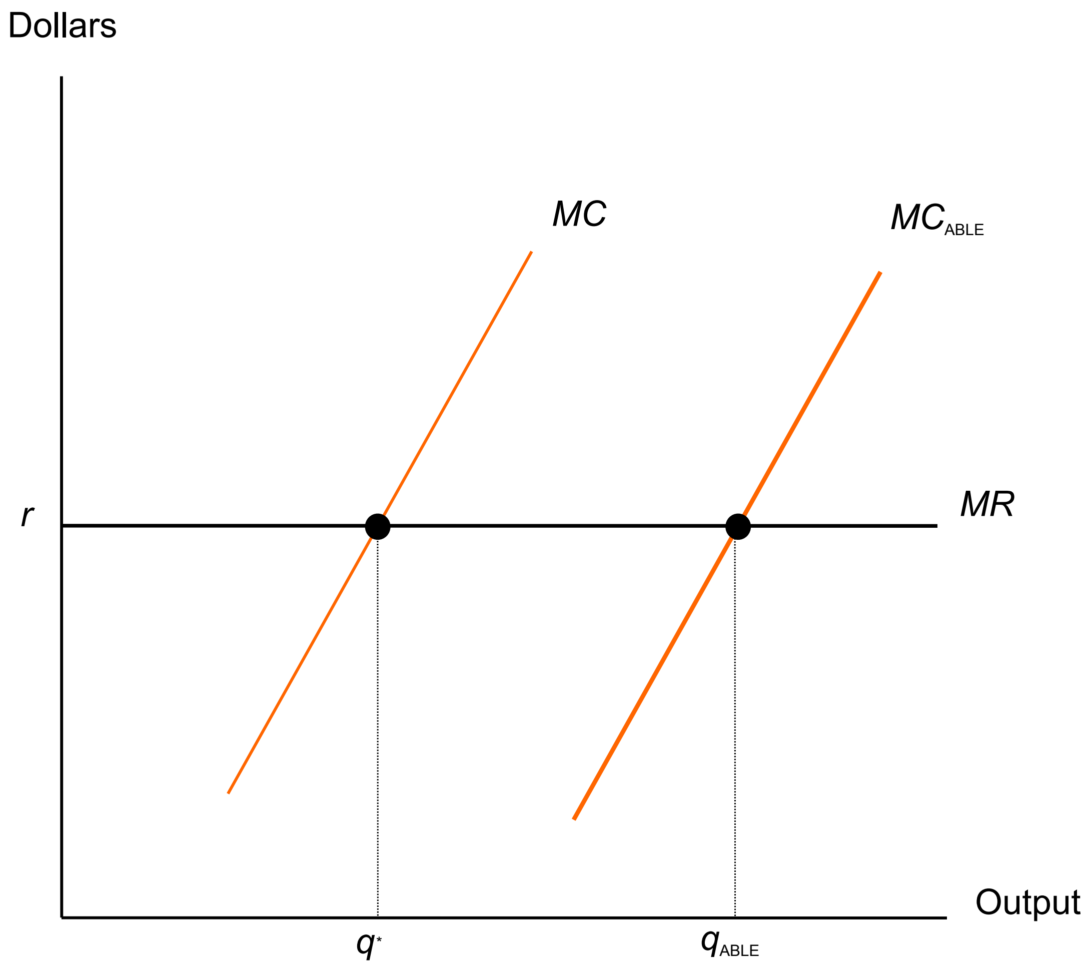
- Piece-rate compensation systems **attract the most able workers** and elicit **high levels of effort** from these workers.

Pay Systems: Piece Rates

Disadvantages:

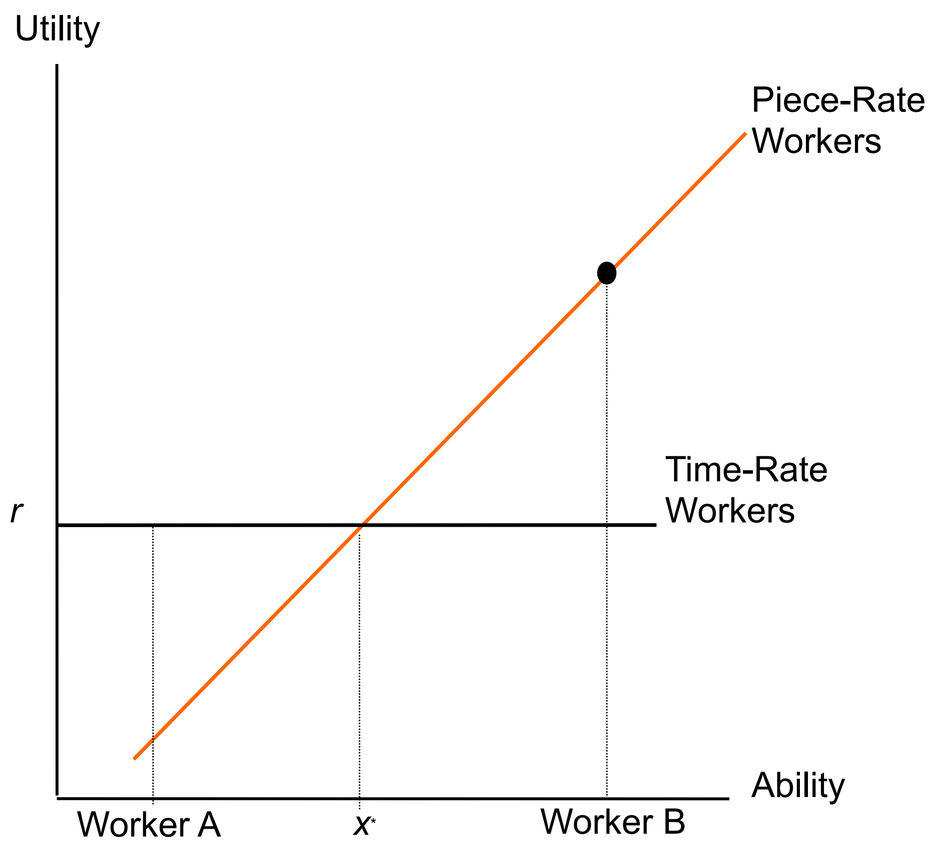
- Workers paid by the piece may **stress quantity over quality**.
- Workers may being paid by the piece because of the possibility that incomes can fluctuate significantly over time.

The Allocation of Effort by Piece-Rate Workers



The piece rate is *r* dollars, so the marginal revenue of an additional unit of output equals *r*. The worker gets disutility from producing output, as indicated by the upward-sloping marginal cost of effort curve. The level of effort (e.g., per hour) chosen by a piece-rate worker equates marginal revenue to marginal cost, or *q** units. If it is easier for more-able workers to allocate effort to their jobs, they face lower marginal cost curves and produce more output.

Effort and Ability of Workers in Piece-Rate and Time-Rate Jobs



All workers, regardless of their abilities, allocate the same minimal level of effort to time-rate jobs. Because more-able workers find it easier to allocate effort, they will allocate more effort to piece-rate jobs and will have higher earnings and utility. Workers with more than x^* units of ability sort themselves into piece-rate jobs, and less-able workers choose time-rate jobs.

Bonuses, Profit-sharing, and Team Incentives

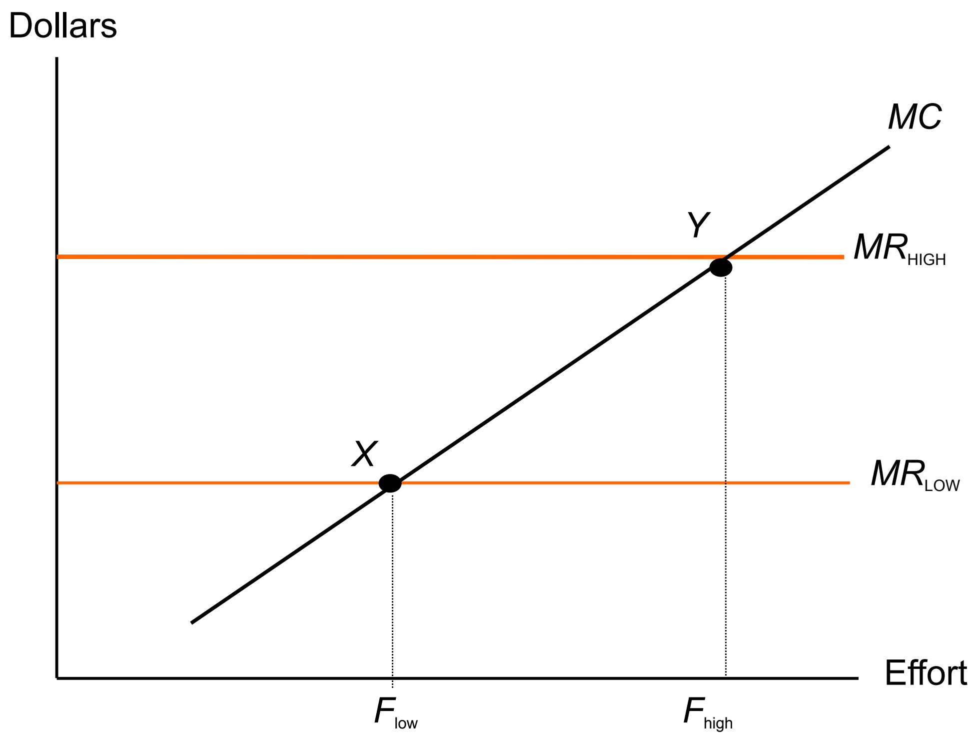
- Unlike piece-rate systems, profit-sharing programs suffer from the incentive problems that afflict all team efforts, particularly the **free-riding problem.**

- Evidence suggests that **profit-sharing plans increase productivity**.

Tournaments

- Some firms award promotions on the basis of the **relative ranking of the workers**.
- A tournament might be used when it is **cheaper to observe the relative ranking of a worker than the absolute level** of the worker's productivity.
- Workers allocate more effort to the firm when the **prize spread between winners and losers in the tournament is very large**. A large prize spread, however, also creates **incentives for workers to sabotage** the efforts of other players or to quit along the way.

The Allocation of Effort in a Tournament



The marginal cost curve gives the "pain" of allocating an additional unit of effort to a tournament. If the prize spread between first and second place is large, the marginal revenue to an additional unit of effort is very high (MR_{HIGH}) and the worker allocates more effort to the tournament.

Policy Application: Compensation of CEOs

- There is a **positive correlation between the compensation of CEOs and the performance of the firm**, but the correlation is weak.

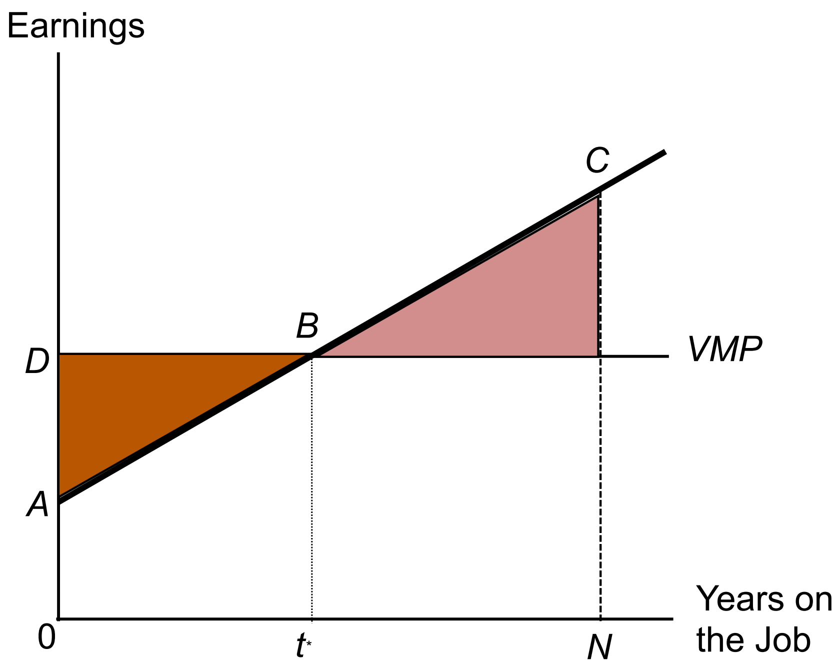
- It is unlikely, therefore, that CEOs have the "right" incentives to take only those actions that benefit the owners of the firm.

Work Incentives and Delayed Compensation

- **Upward-sloping age-earnings profiles** might arise because delaying the compensation of workers until later in the life cycle **encourages them to allocate more effort to the firm**.

- A delayed-compensation contract implies that at some point in the future the contract must be terminated, thus explaining the existence of mandatory retirement in the labor market.

Indifference Between a Constant Wage and Upward-Sloping Age-Earning Profile



If the firm could monitor a worker easily, she would get paid her constant value of marginal product (*VMP*) over the life cycle. If it is difficult to monitor output constantly, workers will shirk (if caught, can move to another firm and still get *VMP*). An upward-sloping age-earnings profile (such as *AC*) discourages workers from shirking because, if eventually caught, they cannot be repaid. Workers get paid less than their value of marginal product during the first few years on the job, and this "loan" is repaid in later years.