Lecture 16: Incentive Pay

Economía Laboral

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- Introducción a los sistemas de compensación.
- Piece- & Time-rate systems.
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Spot Labor Markets

Until now, we only spoke about "spot labor markets" and their employment contracts.

In each period, firms decide how many workers to hire at given wages; workers decide how many hours to work; and the interaction of workers and firms determines the equilibrium wage and employment.

The wage equals the worker's value of marginal product.

Spot Labor Markets

One problem with this simple story of how spot labor markets work is that the nature of the employment contract affects both the worker's productivity and the firm's profits.

The details of the contract matter because employers often do not know the worker's true productivity and workers would like to get paid a high salary while putting in as little effort as possible.

Spot Labor Markets

Some firms, for instance, might choose to offer workers a piece rate for their efforts, whereas other firms offer workers a fixed salary. Because the piece-rate worker's income depends strictly on how much output is produced.

"They work hard for the money."

Incentive Pay

Incentive pay may be explained and justified by and in reference to four factors or phenomena[1]:

- Moral Hazard
- Adverse Selection: tendency of individuals to use strategically their private information to pursue objectives that are non congruent with those of the organization, including accepting jobs and responsibilities for which they may not be sufficiently competent or productive.
- The need to induce profitable cooperation in organizations
- The need to counteract costly or unproductive institutional and/or regulatory constraints

[1] The twelve principles of incentive pay. Marcel Boyer (2012)

Compensation Systems

Some compensation systems are:

- Fixed Salary.
- Salary structures (range of pay levels for different job grades).
- Piece Rate (atado a la producción).
- Time Rate (atado al tiempo trabajado).
- A combination of different systems.

Piece Rates or Time Rates?

Consider a firm analyzing whether to offer piece- or time-rates:

- If the firm offers a piece rate, the worker's wage will exactly equal her value of marginal product. However, the firm cannot measure the worker's output precisely and cannot expect the worker to report that number truthfully. But **monitoring** is costly.
- The firm could avoid the monitoring cost entirely by simply adopting a time-rate system.

Competitive firms choose whichever system is most profitable.

Monitoring Costs

Regardless of whether the monitoring costs are borne by the firm or by the worker (through a lower piece rate), firms that have very high monitoring costs will not be able to offer piece-rate systems because few workers would want to receive such low take-home pay.

Conclusion:

Firms with high monitoring costs, therefore, opt for time rates, and firms with low monitoring costs choose piece rates.

Monitoring Costs

It is then not surprising that piece rates are often paid to workers whose output can be observed easily:

- Number of clothes produced.
- Number of boxes of fruits picked.
- Total volume of sales.

And time rates are offered to workers whose output is more difficult to measure:

- College professors
- Software development workers

Monitoring Costs

Question: how do fluctuate monitoring costs in 100% remote jobs?

Workers Effort Allocation

A piece-rate worker chooses how much output to produce at the firm: she produces the amount that maximizes her utility.

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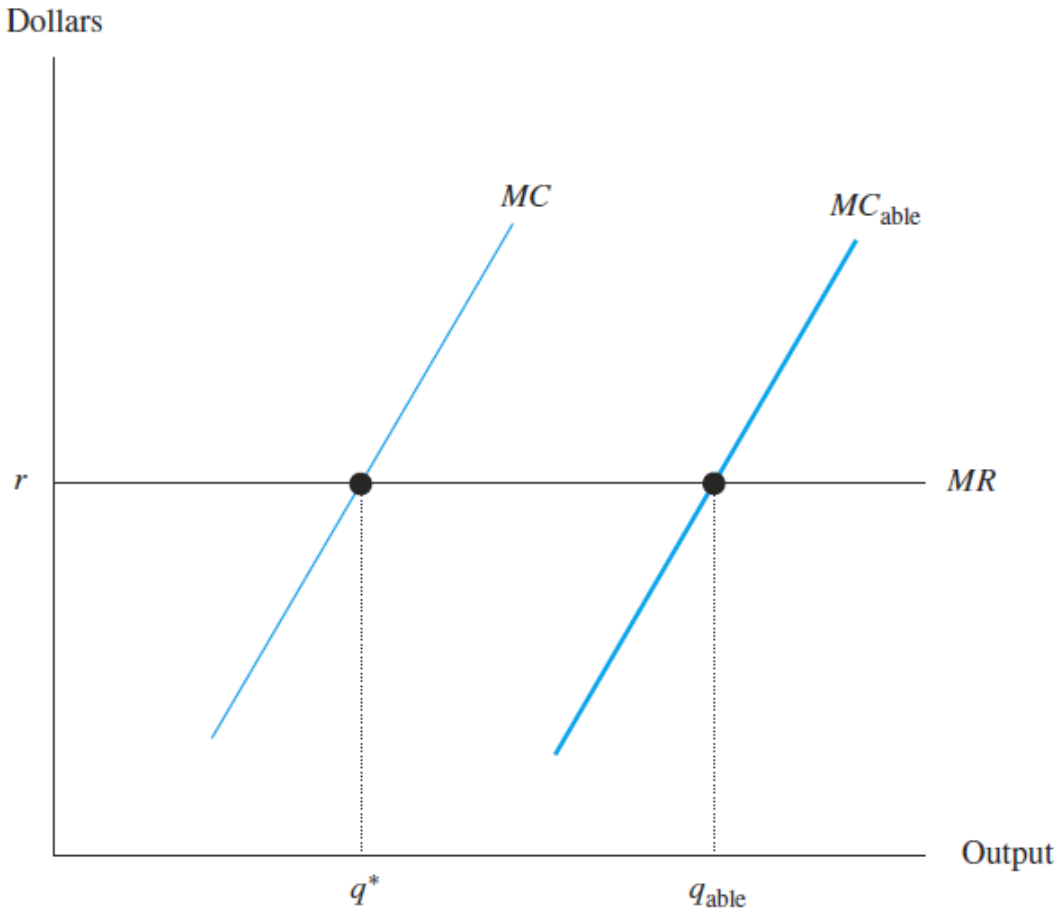
A piece-rate worker chooses how much output to produce at the firm: she produces the amount that maximizes her utility.

1. The more output she produces, the greater her takehome salary, and the better off she is.
2. But it takes effort to produce output and working hard causes disutility or "pain."

Workers Effort Allocation



Nótese la intersección entre *MR* (Ingreso Marginal) y *MC* (Costo Marginal) por unidad producida, para un trabajador habilidoso y otro no.

Workers Effort Allocation

Now consider time-rate workers' effort allocation: suppose there is a minimum level of output, call it $\overline{q}$, that the firm can easily monitor.

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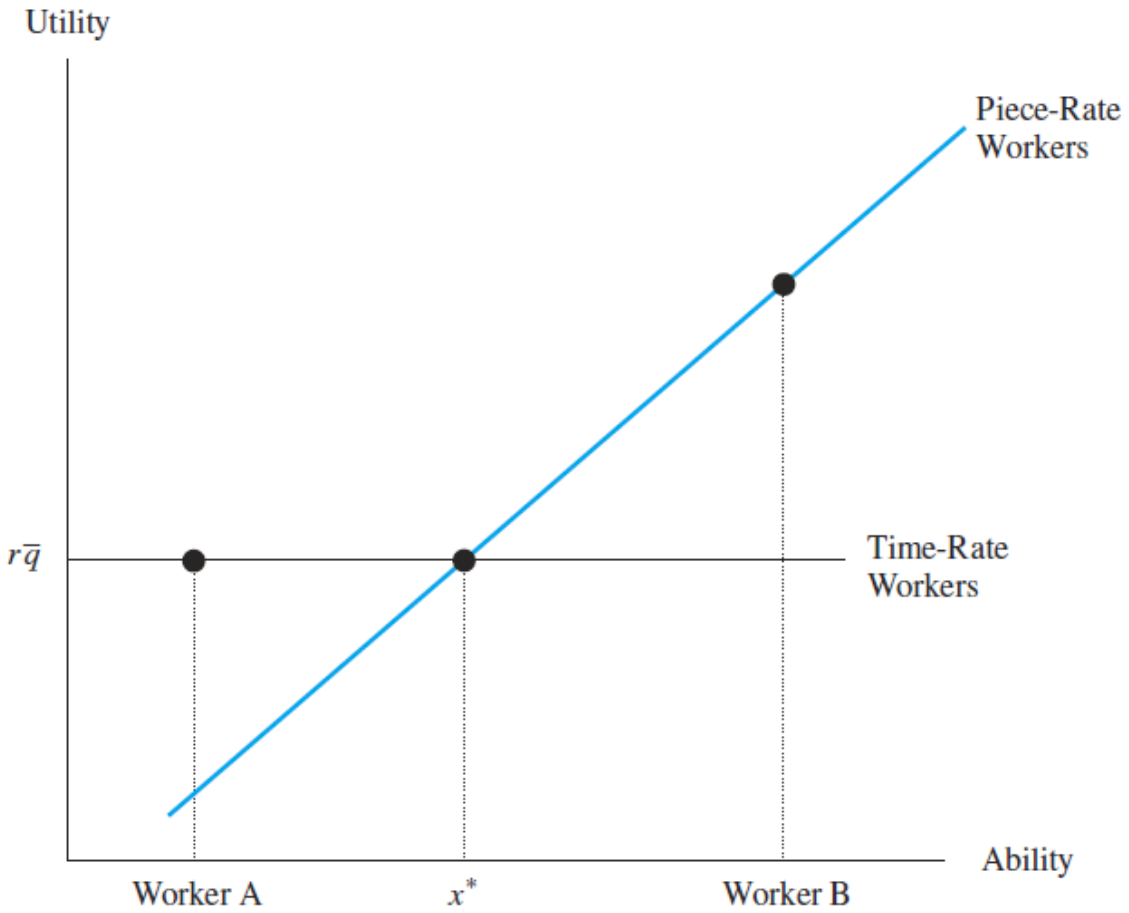
For instance, the firm knows if the worker shows up for work and sits at her desk or takes her spot on the assembly line. If the worker does not achieve this minimum level of effort, she is fired. A timerate worker will then produce $\overline{q}$ units of output, and no more. After all, it is painful to produce output, and the time-rate worker knows she can get away with producing the minimum amount.

Sorting of Workers across Firms

We can now illustrate the relation between a worker's utility and his ability:



Sorting of Workers across Firms

- In the timerate job, the worker's utility equals his income in that job. Note that all time-rate workers, regardless of their abilities, get the same utility (because all workers devote the same minimal level of effort to time-rate jobs).
- In the piecerate job, however, the worker's utility depends on his ability. High-ability workers produce more output, have higher incomes, and have higher utilities.

Sorting of Workers across Firms

Workers are not indifferent between the two types of employment contracts and will sort themselves according to what is best for them:

- More able workers want to separate themselves out of the pack and choose firms that offer piece-rate systems, where their talent for producing output is better rewarded.
- Less able workers choose time-rate firms, where their low productivity is less easily discernible.

Piece-rate system pros and cons

Piece-rate incentive pay advantages:

1. A piece rate attracts the most able workers,
2. Elicits a lot of effort from the workforce,
3. Ties pay directly to performance,
4. Minimizes the role of discrimination and nepotism,
5. Increases firm's productivity.

Piece-rate system pros and cons

Piece-rate incentive pay disadvantages:

1. **Free-riding problem:** work incentives introduced by piece rates are of little use when the firm's production depends on *team* effort as opposed to individual effort. For example: workers along an automobile production line.
2. **Quantity over Quality:** A piece-rate compensation system also tends to overemphasize the quantity of output produced, introducing a tradeoff between quantity and quality.

Piece-rate system pros and cons

Piece-rate incentive pay disadvantages:

3. **Salary Fluctuations:** Workers salaries might fluctuate a lot over time. For example, a salesperson working on commission will depend on the aggregate economy. If workers are risk-averse, they dislike such fluctuations. Workers will instead prefer a pay system where they can feel "insured" against these events and can be guaranteed a steady salary stream.
4. **Ratchet Effect:** Suppose that a piece-rate worker produces more output than the firm expected. The firm's managers might interpret the high level of production as evidence that the job was not quite as difficult as they thought and that they are paying too much. They respond by lowering the piece rate r and workers will then have to work harder just to keep even.

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Tournaments

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In some settings, however, the rewards are instead based on how a worker performs *relative* to other workers.

In effect, the firm holds a **tournament**, or a contest, to rank workers according to their productivity

Tournaments

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A survey of 200 large American firms indicated that the promotion from vice president to CEO involved a pay increase of 142 percent. It is hard to believe that a worker's value of marginal product increases that much overnight.

Other applications

Some questions:

- What happens if you want to fight misbehaviour in workers?
- Can you improve the educational system by incentive-paying teachers?

Other applications: delaying the compensation

Worker's effort and output are hard to observe, and it is very expensive for the firm to monitor the worker constantly. At best, the firm can make only random observations and take appropriate action if neccesary.

But there is a contract that will encourage the worker to voluntarily produce the right level of output (that is, her VMP) even if the firm cannot constantly monitor her performance.

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Suppose the firm offered to pay the worker a wage below her marginal product during the initial years on the job and a wage above her marginal product in the later years.

Other applications: delaying the compensation

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If the worker is caught shirking and fired prior to year $t*$, the worker has contributed more to the firm's output than she has received in compensation. In a sense, the worker made a loan to the firm, and if she gets fired, the loan is lost with no chance of its being repaid.

By delaying compensation into the future, the firm elicits greater work effort and higher productivity. In a sense, the worker posts a bond with the firm during the initial years on the job, and the bond is repaid during the later years.

Other applications: paying more & Efficiency Wages

1. A high wage makes it costly for workers to shirk. If a shirking worker is caught and fired, she loses her high-paying job and may become unemployed.
2. Higher wages might influence the "sociology" of the workplace. Workers who are well paid might work harder even if there is no threat of dismissal.
3. High-wage workers are less likely to quit. The lower turnover rates in firms paying efficiency wages would reduce turnover costs and minimize the disruption that occurs when trained workers leave and new workers have to be hired and trained.
4. Firms paying efficiency wages might attract a selected pool of workers.

Other applications: paying more with equity

También cabe destacar que, para puestos gerencialmente relevantes y/o negocios particulares, una estrategia muy utilizada para retener al empleado y pagar más es utilizando equity de la empresa.

En vez de incrementarle su sueldo de 3x a 6x, se lo deja en 3-4x y en complemento se le otorga un % de las ganancias anuales (por ejemplo, un 5% o 10%). Esto incentiva al empleado que a la empresa realmente le vaya mejor y le mejora su sentido de pertenencia.

Final del Curso

Un breve repaso de lo que vimos en 4 meses:

Fecha	Nro.	Contenido
01/08	1	Introducción a la Economía Laboral & R
08/08	2	EPH y R para TP N°1
22/08	3	Data Wrangling en R
23/08	4	Introducción a GitHub / **Entrega TP N°1 (27/8)**
29/09	5	Data Wrangling: Dates and Time.
05/09	6	Labor Supply Review
12/09	7	**Entrega TP N°2** / Labor Supply & Demand Review.
19/09	8	**Semana Primer Parcial** / Matemática para TP N°3.
26/09	9	Charla con invitado sobre emprendedurismo y startups.
03/10	10	R para TP N°3. Vectores y Factors en R.
10/10	11	Strings y Regex en R.
17/10	12	**Entrega TP N°3**
24/10	13	Python y Stata.
31/10	14	Diferencias Igualadoras y Distribución del Ingreso.
07/11	15	**Entrega TP N°4** / Applied topic N°1: Sindicatos.
14/11	16	Applied topic N°2: Pagos de incentivos.

Final del Curso

A quienes participaron de las clases, **gracias!** Estoy abierto a sugerencias, críticas e ideas para mejorar el curso.

Quedamos en contacto siempre para lo que necesiten,

- Dudas profesionales o académicas
- Networking: real estate, agronegocios, emprendimientos, finanzas, etc.
- Mentoring: desarrollo profesional/personal

Me escriben por WhatsApp (11 2167-1040) o LinkedIn.