


Economics 136

Chapter 5 Variable Pay or
Straight Pay?



Appendix: Responsible for all of
appendix except pages 129-131
on ratchet effect



Key Questions

- 1) Relative advantages/disadvantages of variable pay (piece rates) vs. straight salary
- 2) For piece rates, what is the best commission rate to pay?
- 3) Should commission be based on total revenues or revenues net of costs (Π)?
- 4) How to reduce problems with variable pay?



Piece Rates: Advantages

- 1) Screen out less productive workers
 - See last chapter
- 2) Provides incentive to work harder
 - In last chapter we assumed only that workers vary in ability. Now their effort can vary too.
 - In general, to get workers to work harder, must increase pay more than proportionately

Workers are very willing to increase effort 1 unit from low levels; less willing at high levels



\$/hour

Hours worked

Paying workers a greater share of
(revenue – non-labor costs) will
increase effort



\$/hour

Hours worked

Real World Case Study: Safelite Glass

- Old system was fixed salary subject to firing if fixed too few windshields per day

Earnings per hour



Minimum acceptable
output

Output per
hour

New Pay Structure: Combine Flat Hourly Wage with Bonuses (as long as meet minimum level)

Earnings per hour



Minimum acceptable output

Output per hour



Effects on Worker Earnings and Productivity

- Average worker earnings increased 9%
- Average worker productivity increased 36%
 - So Π rose too!
- Why the increase in productivity?
 - 1) 2/3 due to increased effort
 - 2) 1/3 due to more productive workers staying and perhaps, less productive workers quitting



2) For piece rates, what is the best commission rate to pay?

- Should you pay $< 100\%$ commission on net revenues, 100% or more?
- Answer:



Mathematical derivation

- Appendix to chapter covers a fairly general case. We'll extend just a bit and fix two typos in the appendix.
- Assumptions:
 - Utility: $U = \text{earnings} - C(E)$ where $E = \text{effort}$, $C' > 0$, $C'' > 0$
 - Firm: Sets two-part piece rate, paying wage of $\alpha + \beta E$
 - Therefore worker's problem is simply:
 - $\max_E \alpha + \beta E - C(E)$



Math derivation: General Case



Math derivation: Continued
