



Chapter 11 Seniority-Based Incentive Systems

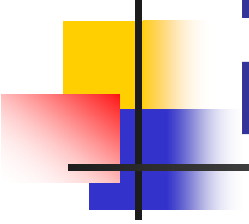
Julian Betts, Economics 136

Note: Skip appendix



Main Questions

- 1) When people unlikely to get promoted, what are alternatives to provide motivation?
- 2) What about pay raises as experience rises? Risks to firm and worker
- 3) Can overpaying older workers cause them to stay too long past normal retirement age?



1) When people unlikely to get promoted, what are alternatives to provide motivation?

- Can be huge incentive to goof off or “shirk”
- If no chance of promotion, and hard to monitor effort all the time, worker may decide to increase “leisure” on the job at a small risk of being caught and fired
- Cost of being fired = $W(t) - Alt(t)$ where $Alt(t)$ is utility at worker’s next-best opportunity

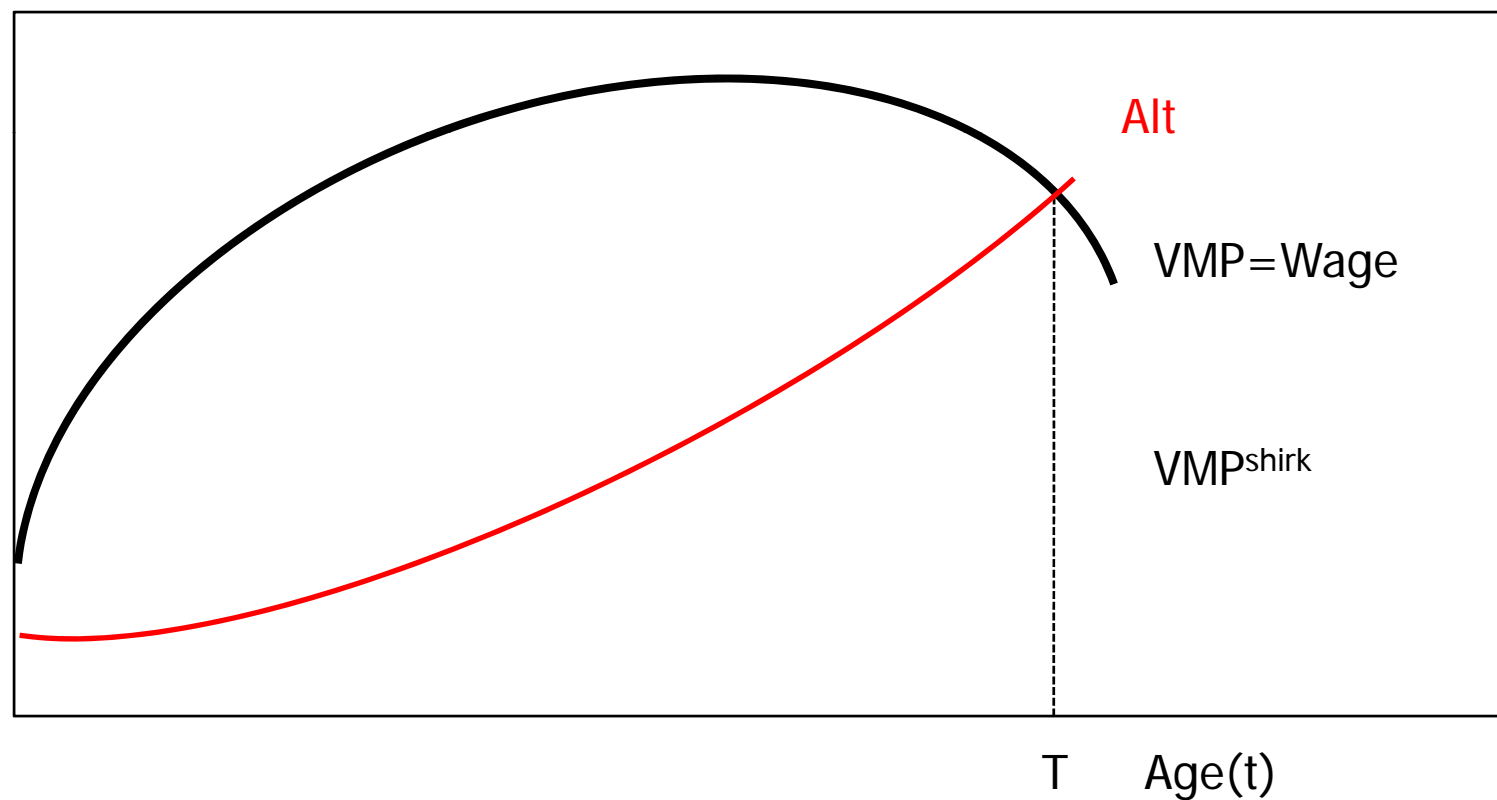


Shirking could become worse near retirement age

- Toward retirement $Alt(t)$ rises as value of leisure goes up.
- Also $VMP(t)$ tends to fall due to depreciating human capital
 - (Workers toward retirement find it optimal to reduce training – including “refresher courses” – because payback period is short)

Incentive to shirk rises as approach retirement age T

Output,
Wage



Comparing Gains and Losses from Shirking

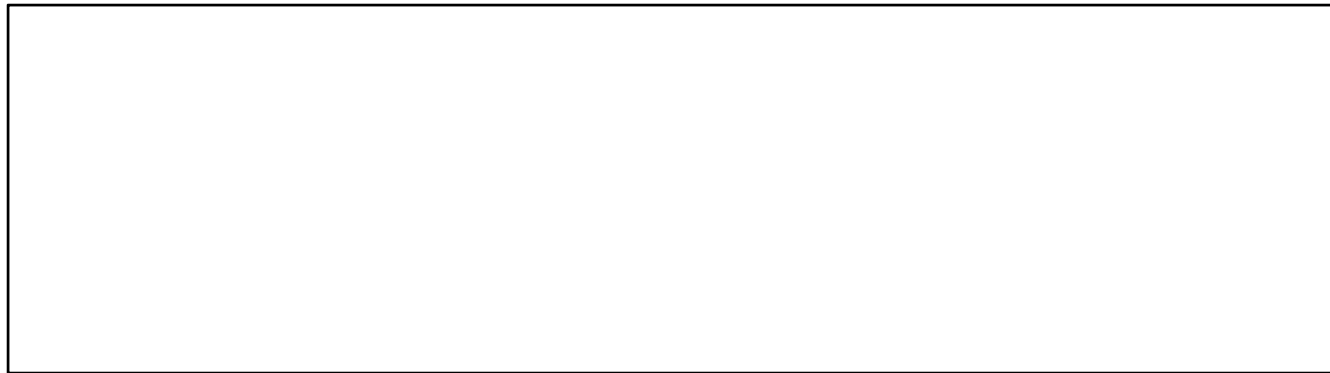
- Gain = extra leisure

- Loss =

- Solution?

2) What about pay raises as experience rises? Risks to firm and worker

- Underpay worker when young and overpay when old
- So firm does not lose money, and worker still, overall worker gets paid present value of VMP:





Effects of Allowing W to Vary from VMP

- Older worker now has LESS incentive to shirk because $(W - Alt) \gg 0$ even near retirement:



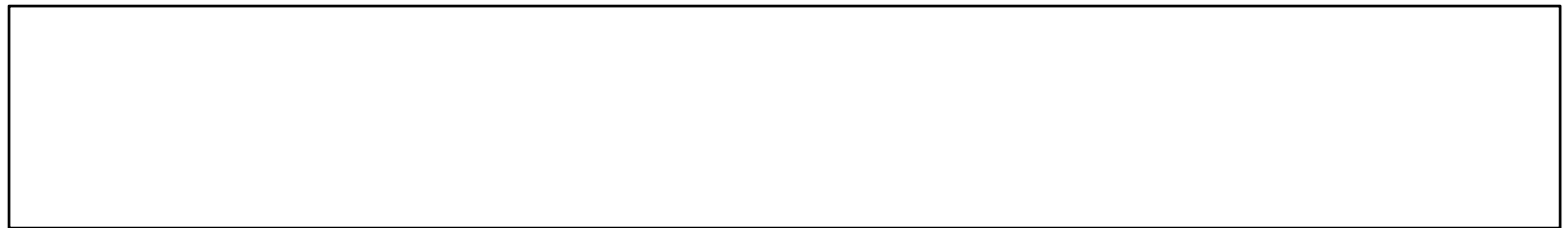
Why Would Worker Accept Low Wage Initially?

- Overall, paid the same as if $W = VMP$ each period
- Worker realizes that a firm offering $W_t = VMP_t$ for all ages t will have to lower wages for, or fire, many older workers because they will be tempted to shirk near retirement
- In practice PENSIONS play role of motivator as their value goes up with years of tenure



Risks to Worker

- 1) Workers is making “loan” to firm that is supposed to be paid back towards retirement. Gives firm incentive to lay off older workers and “pocket the change”

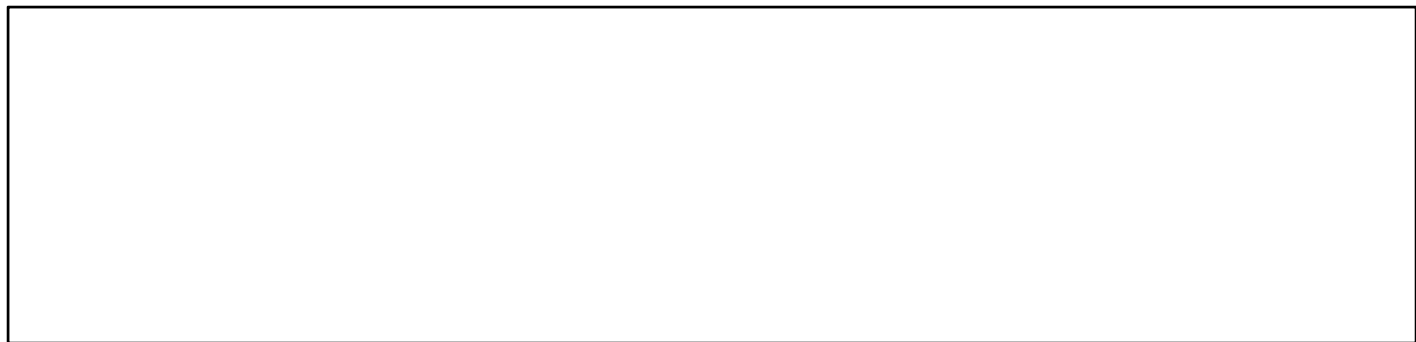


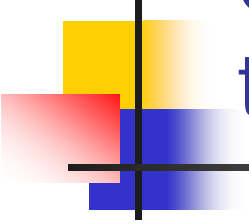
- Risk of firm bankruptcy



Risks to Firm

- At normal time of retirement, period T , if $W(T) > Alt(T)$ then worker won't want to retire.
- Lazear (1979)

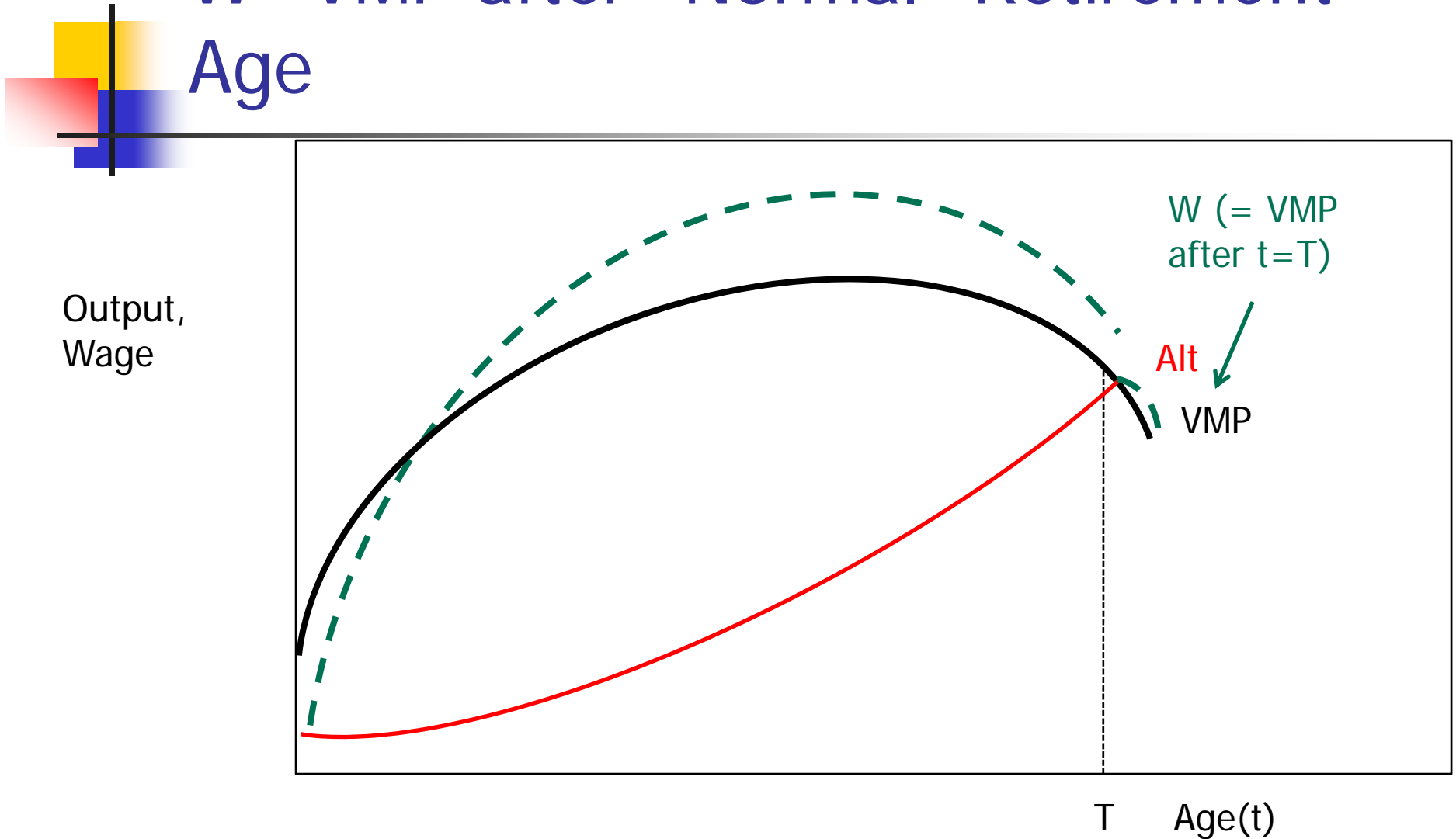




Question 3): How to Reduce Risk that Overpaying Older Workers Causes Them to Stay Past Normal Retirement Age?

- But mandatory retirement now virtually outlawed. Solutions?
- i) Reduce W to VMP after retirement age. But this decreases effort and could cause lawsuits
- ii) A better solution: Offer pension buyout plan to get volunteers to leave

So Modify Our Earlier Graphs: Set $W = \text{VMP}$ after "Normal" Retirement Age





Two Conditions Which Make Positively Sloped Wage Profile Especially Useful

- 1) Output hard to measure
 - By creating a huge potential loss if get caught shirking, firm decreases shirking.
 - The larger the punishment, the less often supervisor has to monitor. (See sleeping janitor story p. 294)
- 2) Situations where cooperation is important, so that tournaments don't work well


What About Real World, Where We See Raises and Promotions?

- Goal is to do both to create incentives throughout career:

Wage



Tenure



In Practice, How Does Manager Decide How Steep the Wage: Tenure Profile Should Be?

- Human resources departments hire compensation consultants who conduct salary surveys. Can use to:
 - a) Calibrate firm's pay scale to market wages
 - Most common use
 - b) Estimate how worker effort responds to initial salary and salary hikes
 - See pp. 295-298 for details...



The Basic Idea

- 1) Use regression analysis to estimate hours worked (or productivity) as function of initial salary, and wage gains over career.
- 2) Estimate $d(\text{hours worked})/d(\text{wage gain})$ and the related cost
- 3) Compare cost to:
 - $d(\text{Net Revenues})/d(\text{hours worked})$