Part 4: Market Failure II – Asymmetric Information, Moral Hazard

Hidden Action, Moral Hazard, Incentives, Agency, Principal-Agent

July 2016
Moral Hazard in the Insurance Market
Introduction

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→ better incentives but inefficient outcome
An Example

- two parties: car driver $D$ and insurer $I$
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- car accidents cause loss $L$; occur with probability $p$
  
  - if driver is careful
    
  - if driver is careless
    
  \[ p_L < p_H \]

  insurance offers actuarially fair rates; price per $ coverage is
  
  - careful driving (accident prevention) costs disutility $c$
  - careless driving costs nothing
  
  assume $c < L$ ($p_H - p_L$)
  
  \[ c < L(p_H - p_L) \]

  $\rightarrow$ careful driving is efficient
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  → but after signing contract driver’s income is $y - \pi$

Moral hazard increases the insurance premium; if the driver could credibly promise to be careful, he would be better off.
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Moral Hazard in Agency
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  - interest diverge

Examples: performance-based pay in employment (commissions, piece rates), deductibles in insurance, warranties in business, stock-option plans in corporate governance, bonus pay for professional athletes and lawyers.
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- $A$ can exert unobservable effort $e \in \{0, 1\}$ at cost $c(e)$.
  - $c(1) = c_1 > c_0 = c(0)$, with $c(1) = c_1$ and $c(0)$. 

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- $P$ prefers success to failure, wants $A$ to work hard.
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- but if effort is unobservable, wage cannot depend on \( e \)

\[ \Rightarrow \text{for a fixed wage } w, \text{ agent chooses } e = 0 \text{ since} \]

\[ w - c_1 > w - c_0 \text{ regardless of } w \]

a fixed salary gives no incentives; the agent will not work hard but be lazy (moral hazard problem)
Solving the Moral Hazard Problem with Incentives

- solution: use output-based performance schemes

\[ p \text{ pays } \begin{cases} w_S & \text{if project is success} \\ w_F & \text{if project fails} \end{cases} \]

\[ w_S > w_F \]

The agent chooses \( e = 1 \) if

\[ \frac{1}{2} w_S + \frac{1}{2} w_F - c_0 > w_F - c_0 \]

⇒ The agent will work hard if \( w_S - w_F > 2(c_1 - c_0) \)

Variable pay (bonuses, piece rates, profit shares, deductions) solves the moral hazard problem.

But: Variable pay means agent exposed to risk → inefficient risk bearing
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- which dominates depends on circumstances (compare health insurance with fire insurance)