Asymmetric Information: Signaling

Verifiable Information

eg Cournot

\[
\begin{align*}
C^H &= C^M + x \\
C^M &= C^M \\
C^L &= C^M - x
\end{align*}
\]

Firm B knows only its costs
Firm A knows both costs
Firm A can costlessly and verifiably reveal its costs to B

If \( C^L \) then reveal
Therefore \( C^M \) reveals as well to prevent being mistaken for \( C^H \)
Therefore \( C^H \) is revealed

Informational unraveling

Lesson lack of a signal can be informative

"Silence speaks volumes"

Verifiable

Not verifiable - costly signaling

\[
\begin{align*}
G - \text{workers} &= 50 \quad \text{(productivity)} \quad 10\% \\
B - \text{workers} &= 30 \quad \text{(""')} \quad 90\%
\end{align*}
\]

Firms compete for workers, so pay 50 to workers they identify as G

\[
\begin{align*}
30 \quad \text{to a worker they cannot identify B}
\end{align*}
\]

Main signal is Education (Spence)

MBA suppose that the cost per year of MBA-educated

[If G worker] not fees
10.01 if B worker
not opportunity costs

Pain of work

I claim there is an equilibrium in which

degrees take 3 years
G-workers all get MBAs
B-workers do not
and the employers identify MBA = G
not MBA = B

To check

Separating Equilibrium

1) Need to check no type will deviate

\[
\begin{align*}
G - \text{workers} &\rightarrow MBA \rightarrow \text{id'ed as G} \rightarrow \text{payoff} \quad 50 - (3 \times 5) \\
&\quad \text{if deviate} \rightarrow \text{not MBA} \rightarrow \text{id'ed as B} \rightarrow \text{payoff} \quad 30\checkmark
\end{align*}
\]

\[
\begin{align*}
B - \text{workers} &\rightarrow \text{not MBA} \rightarrow \text{id'ed as B} \rightarrow \text{payoff} \quad 30\checkmark
\end{align*}
\]

2) Need to check that employers' beliefs are consistent with equilibrium behavior

How about a one-year MBA? ...
How about a one-year MBA?

Not an equilibrium problem: B-workers
in the "equilibrium" \( \rightarrow \) Not MBA \( \rightarrow \) 30
if deviate \( \rightarrow \) MBA \( \rightarrow \) 50 \((1 \times 0.01)\)
\(\approx 40 \times \)
identified as G

But two-year MBA will work

Need enough difference in cost for
G to get the degree
B not to want to do so

Lesson: a good signal needs to be
differentially costly across types
- qualification inflation

Lessons for Education

1) pessimistic - no learning, only pain
2) socially wasteful - send professors to drive dump trucks
3) increases inequality - hurts the poor