

## Supply of health care – Labor 2

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# Labor Topics

Last time, we discussed the first 3. Now, we are moving to the last 3 topics.

- ▶ Physician productivity
- ▶ Shortages
- ▶ Physician price discrimination
- ▶ Supplier induced demand
- ▶ Small area variation
- ▶ Malpractice

# Supplier Induced Demand

Physicians (supplier) use the fact that patients don't know what treatments they need and increase demand for their own services.

Example:

- ▶ If supply of doctors increased, we should see more health care at cheaper prices
- ▶ However, physicians, who are losing earnings, increase the demand for their own services (SID)
- ▶ The new price can be lower or higher than the original price ( $P_0$ ).
- ▶ But the total spent on health care is higher with SID.

# SID Graph

## SID – Is it good or bad?

Similar to advertising theory:

- ▶ Supplier tells customer how great this product is
- ▶ Wants them to buy it and buy it from them
- ▶ Costs the supplier something to advertise (time, money, reputation)
- ▶ Can be misleading and wasteful (buy something you don't need or that is harmful)
- ▶ Can be informational (extra test turns out to be a great thing)

## SID – Evidence

- ▶ Difficult to prove because how do you know demand is not truly increasing, instead of being induced?
- ▶ Could be that prices go up with higher supply of physicians because doctors are competing with quality care and quality care costs more
- ▶ Rossiter and Wilensky (83,84): patient initiated visits are not induced by doctor; dr supply increases only affect doctor initiated visits, but effect is small
- ▶ Gruber and Owings (1996): when fertility declined in the US, obstetrician income fell; used SID to encourage more profitable C-sections

# Small Area Variation

- ▶ SID happens if doctors know more than patients
- ▶ SAV happens if doctors don't know very much
- ▶ small area variation is large variation in procedure rates across groups where you would expect similar rates – the difference is the doctors' knowledge and preferences
- ▶ Must be careful to avoid looking at rare diseases where there might naturally be a lot of variation.

## SAV – How to measure?

- ▶ **Max-min ratio:** large prevalence compared to smallest
- ▶ **Variance**

$$Var = \sigma^2 = \frac{1}{n} \sum_{i=1}^n (P_i - \mu)^2 \quad (1)$$

$P_i$  is prevalence in each town

$\mu$  is mean prevalence

$n$  is number of towns

- ▶ **Coefficient of Variation**

$$CV = \frac{\sigma}{\mu} \quad (2)$$

## SAV – How to measure?

CV is preferred to Variance because scale doesn't matter:  
If double every town's prevalence:

$$\begin{aligned}\sigma_{double}^2 &= \frac{1}{n} \sum (2P_i - 2\mu)^2 \\ &= \frac{1}{n} \sum 2^2 (P_i - \mu)^2 \\ &= 4\sigma^2\end{aligned}$$

## SAV – How to measure?

$$\begin{aligned}
 \left(\frac{\sigma}{\mu}\right)_{double} &= \frac{\sqrt{\frac{1}{n} \sum (2P_i - 2\mu)^2}}{2\mu} \\
 &= \frac{\sqrt{\frac{1}{n} \sum 2^2 (P_i - \mu)^2}}{2\mu} \\
 &= \frac{2\sqrt{\frac{1}{n} \sum (P_i - \mu)^2}}{2\mu} \\
 &= \frac{\sigma}{\mu}
 \end{aligned}$$

## Why is SAV bad?

- ▶ Need to understand consumer surplus to evaluate...
- ▶ **Consumer Surplus** is the difference between consumer's willingness to pay and the amount actually paid
- ▶ Shaded area below demand curve, above price

## Why is SAV bad?

- ▶ Assume patients knew everything, they would demand a procedure according to demand curve  $D^*$
- ▶ In towns where under-utilize treatment, lose CS
- ▶ In towns where over-utilize treatment, for some price, exceeds willingness to pay
- ▶ These are welfare losses to patients.
- ▶ So, SAV is bad.

# SAV Graph

# Medical Malpractice

- ▶ Deterrence
- ▶ Defensive Medicine
- ▶ Malpractice Insurance

# Deterrence

- ▶ One way in which society can ensure that doctors do their best is to punish them if they don't.
- ▶ Medical malpractice is intended to induce the socially optimal levels of precaution
- ▶ Does it do this? White (1994) finds malpractice is blunt instrument for deterrence:
  - ▶ 2.6 % of people negligently injured file claim
  - ▶ 1.0 % of people injured non-negligently file claim
  - ▶ 0.1 % of people non-injured file claim
- ▶ There are cheaper ways to compensate injured than the legal system.

## Defensive Medicine

- ▶ However, it may go too far and cause doctors to practice defensively – choosing to be too cautious such that it is costly to
- ▶ For example, higher malpractice risk induces ob/gyns to perform more C-sections because less likely to get sued, but costs more. society
- ▶ Evidence: Kessler and McClellan (1996) find that limiting liability reduces hospital expenditures; the debate is still on-going

# Malpractice Insurance

- ▶ Most insurers charge all doctors within a specialty and region the same premium = ‘community rating’
- ▶ This is because individual doctors experience few suits, although experience rating is emerging in high risk specialties
- ▶ This further blunts the deterrence effect of malpractice – don’t pay more if higher risk of suit