Module 2: Physician Agency and Treatment Decisions

Part 2: Agency and Fee-for-Service Payments

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Econ 372

What are fee-for-service payments?

- Fee-for-service (FFS) means providers are paid a set payment for a well-defined service
- More services = more payments
- Potentially encourages overuse

How are FFS payments calculated?

- Until 1983, Medicare paid hospitals on a "cost-plus" basis
- Can you think of some problems with this approach?

How are FFS payments calculated?

- In 1983, Medicare switched to a "Prospective Payment System"
- PPS: fixed payment that hospitals know they will receive in advance
- **Fixed** based on the Diagnosis Related Group (DRG) code and other hospital characteristics

How are FFS payments calculated?

Let's work through a simple example:

1. PPS "standardized" amounts (one for labor and one for capital)
2. Adjust labor amount for wage index and add standardized capital amount
3. Multiply by DRG weight
4. Multiply by disproportionate share and teaching hospital adjustments (if relevant)
5. Account for outliers

How are FFS payments calculated?

Step 1

$$((\text{Labor} \times \text{Wage Index}) + \text{Capital}) * \text{DRG Weight} = \text{Base Payment}$$

Step 2

$$\text{Base Payment} \times (1 + \text{DSH Adj} + \text{Teaching Adj}) = \text{Final Payment}$$

Let's look at some of these in real life with the CMS IPPS Final Rule files.

Downside to PPS system?

- Still an incentive for overuse
- Incentive to upcode

In-class Problem: Agency and fixed prices

Assume $B(x) = 4x^{1/2}$, $NB^0 = 0$, anc $c = 1$. Further assume that prices are fixed administratively at, $\bar{p} = 2$. Note that, in this case, we work only off of the patient's net benefit constraint.

1. What is the physician's and patient's optimal amount of care provided?
2. The government is considering increasing the price to $\bar{p} = 3$. What are the new optimal levels of care for physicians and patients at this new price?
3. How would the price change affect the difference between the patient and physician's optimal amounts?

Comparative statics

An increase in the administratively set price leads to a **decrease** in quantity of services provided. And vice versa, a reduction in price leads to an **increase** in quantity provided. Why?

$$b(x)\frac{\mathrm{d}x}{\mathrm{d}p} - x - p\frac{\mathrm{d}x}{\mathrm{d}p} = 0$$

$$\frac{\mathrm{d}x}{\mathrm{d}p} = \frac{-x}{p - b(x)} < 0.$$

Comparative statics

- This comes from the physician's constraint, which is essentially a reflection of demand
- Higher $\bar{p}$ means the constraint is met at a lower value of x, and vice versa

Why does this matter?

Say we want to reduce health care utilization, and we try to do so by cutting payments. Will this work?

Fixed payments in practice

Real life is a little more complicated!

- Often more than one treatment to consider
- Often more than one payer (private and public) to consider
- Patient's shielded from the full cost of care
- Benefit function is unknown and subject to asymmetric information

Some other ways to model provider treatment

- Target income hypothesis
- Physician-induced demand
- Real life is more nuanced

$$u(x) = V(\pi) - e(x) + \alpha B(x)$$