



Unit 4: Is health care production the same as any other occupation ?



1. A supply and demand health care model

- Hello. My name is Randall Ellis. I'm a professor at Boston University. I'm going to be talking today about supply-side cost sharing. As an introduction I want to highlight that many clinicians and health care providers feel uncomfortable thinking that their style of care is influenced by the way they are compensated. Economists believe
- that everybody's behavior is influenced by incentives but that may not be so popular and as a result many people... economists are not always very popular with health care providers. But still, the assumption of how you respond and the reality that is proven by evidence does lead to some very useful predictions that I will discuss. I want to start with a few examples that may bring this to something you will agree with. If you imagine you are operating a hospital and all your beds are full then another patient shows up... Do you empty out some patients and ask them to be discharged to make room for that patient? Or you might find that there is a long wait outside your office in which case you want to try to see your patients a little more quickly. Or possibly, you purchase a new MRI machine and you find that you want to use it a little bit more because it is available. Or finally, if an uninsured immigrant comes to your office do you give them the same amount of care you give the well-insured French citizen? If your answer was yes to any of those questions then you are responding to financial incentives. It may be a question of time and effort or reputation but economists would say Yes, that's the kind of response we're interested in trying to model. I'm going to build a very simple model of demand and supply and use it to motivate one view of how hospitals respond to incentives or at least doctors and hospital staff. I'll start with a silly example. One of my favorite things in France is to talk about chocolate croissants. If you imagine the demand for chocolate croissants then there will be some price. I haven't looked up the current price but let's just call it X. When you go to a store some pâtisserie, they might charge a higher price so they might charge 50% more or they might charge that price or less. With that you can consider how many croissants you may demand. A common thing might be that if you had to pay the full cost you might buy two croissants then as the price fell and they were free on a bargain you might choose to buy four croissants. You can reflect this in the demand curve. If you had to pay the full price on the vertical axis – here's the demand curve – you could think about the price not in terms of euros but rather what fraction of the cost you pay. So a person who had to pay the full cost might buy two croissants and as the price falls to zero they might buy four. Another unusual thing about this curve is it extends below zero which shows that if you want to pay people more to buy croissants you could get them to buy five. Here we have a very simple model. The bonus question is: What quantity of croissants would make the consumer the happiest? Economists might say four croissants because that's when they maximize their happiness with a free price. Now what does this have to do with health care? The answer is that we can use exactly the same framework maybe with a little more controversy to talk about what your demand is for days in the hospital. On the same axis we put the vertical scale as your price to the consumer as a fraction of the cost of a day in the hospital. Then on the horizontal axis we measure the number of days in the hospital. This demand curve could then be used to consider how many days the consumer spends in the hospital when they have full insurance. The answer might be with full insurance four days per stay. Then you can ask the question: "Would people want to demand as many days in the hospital if they had to pay the full price?" The answer is no. They might want to stay only two days.





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- You could follow the same demand curve pattern to see how many days they would want in the hospital. What does this have to do with supply-side cost sharing? That's what I want to discuss. We can now think about doctors and hospitals. I want you to assume that doctors care about their patients but that they also care about the cost of their time and effort providing services or that hospitals care about the cost, and, for the same reason, those uninsured immigrants might get a different quantity of care than the fully-insured French citizens. So the question to ask then is
- How many days will a doctor recommend for a fully-compensated patient? given that they do care about the cost of their time. You can use the same picture but this time on the vertical axis you put the share of the cost that the hospital bears – the supplier cost – do they get more money if they offer more services? On the horizontal scale, again, the number of days in the hospital. The interesting point is that if you are fully compensated for your care and the hospital wants to maximize the happiness of their patients they will go with four days in the hospital since that makes the patient happiest. If the hospital is compensated they're happy to accommodate. Interestingly if the hospital had to bear some of the full costs of the care they would have the patient stay fewer days. If they paid attention to what the patient would pay at the same cost for doctors they might only offer two days of care for that same patient. If you track those two you get a supply curve shown in this figure and you can then use this to think about what happens in different possible scenarios. In my own work, I happen to believe doctors are altruistic and as you make them more and more altruistic these supply curves become steeper and steeper which means they do not adjust the number of days by as much as the price goes up. The perfectly altruistic – the saint doctor – might say I don't change my quantity at all whether they are insured or not whether I get paid or not. But most hospitals won't let doctors do that and will have them do less. One view you can think of is how does altruism affect the quantity of services offered? You can also use this same model to think about what happens if you overpay for services. What you find is that if you pay too much they will offer more quantity than what the patient demands even when they pay zero. Remember the croissants, how you can get people to buy more by over-bribing them and paying them? In a sense, you may be in danger that, if doctors and hospitals make too much money, they will keep patients too long. These are some of the insights you get via supply-side cost sharing. I want to summarize by saying "Supply-side cost sharing is the share of costs the provider has to bear for each euro of expenditure they make for a given patient. The kind of insights you get is that doctors or hospitals that are more altruistic may not respond as much to these incentives and overpayment can result in serious amounts of overtreatment even beyond the point that well-informed consumers would choose. This is a very powerful tool to influence spending and quality. Thank you.

