

*“They write politics, we write government”*

## THE FUNDAMENTAL THEOREM OF HEALTH INSURANCE

Many disciplines have “Fundamental Theorems.” They take a complex topic and distill it to an essence, from which much of the rest can be derived. A fundamental theorem should be as short and simple as possible. It should be accessible, easy for non-experts to follow. But it should also have reach – to be called on frequently for insight.

Many Fundamental Theorems are stated for branches of Mathematics. For example, in arithmetic, every integer greater than 1 can be uniquely expressed as a product of prime numbers. But other disciplines have them also. In poker, *“Every time you play a hand differently from the way you would have played it if you could see all your opponents' cards, they gain; and every time you play your hand the same way you would have played it if you could see all their cards, they lose.”* Fundamental Theorems aren't intended to tell you everything. However, if you take each to all of its logical conclusions, you'll be amazed how much you know.

Like mathematics and poker, we know that health insurance markets are also complex – filled with paradoxes and fancy-sounding terms like “death spiral.” Can we distill the essence of the topic down to something that will easily fit on an index card? If you have read everything in the Commentary, you know that I believe you can:

***If it's not required for everybody, it will not be available for everybody. If everybody has the choice, then nobody will have a choice.***

When using the Fundamental Theorem, we need to make only the assumption that the underlying health insurance system is similar to ours. Free and

capitalist in nature, all of the players behave according to their own best interest, within a set of rules set by the government. The Fundamental Theorem is, in fact, small-c “conservative.” Now, health insurance isn't math or physics; it isn't possible to create formal proofs. However, by using just the assumption of self-interest, we can provide strong evidence for our Theorem.

If it's “not required for everybody,” this means there is no individual mandate (or a weak individual mandate). In other words, there is no encouragement for people to buy health insurance if their expected health costs are lower than the premiums. Governments have a choice to make: they can either allow insurance companies to price premiums differently for each person, based on their health. Or, they can enforce “Community Rating,” where each person pays a premium that will be based on the health costs of the **average person who buys insurance**.

If insurance companies can charge different amounts to people based on expected health costs, they will charge more for people with higher expected health costs. We know this because these companies act in their self-interest. They would rather pay out fewer health costs, and they can charge less to people who will have fewer health costs; therefore, they will. People with very high health costs – those with chronic diseases like cancer or lupus or histories of heart trouble – will be charged far more than they can afford. By any reasonable definition, insurance is not “available” to them. So, without Community Rating, health insurance will not be available for many people with so-called pre-existing conditions.

It seems that Community Rating – charging everybody the same amount for their insurance – would solve the problem. But, if the premium for everybody is priced at the average cost of health care for everybody, then people with health costs significantly lower than this average will choose not to buy insurance. Spending on health insurance is highly skewed. Around 50% of all healthcare money is spent on just the [most expensive 3% of patients](#), while the least expensive 50% of patients account for only 3% of total spending. Therefore, far more than half of people have health costs below the average for the population. It doesn't make sense for these people to buy insurance, so they won't.

Because many fewer people buy health insurance, the average cost per insured person is much higher; we say that “the risk pool has worsened.” Premiums will go higher. Now, even fewer people have an incentive to buy health insurance; those that do will have even higher health costs. The risk pool worsens again, premiums increase again, and so forth and so forth. Soon, nobody will be able to afford insurance; this is a death spiral. We've shown that, in absence of a mandate, much of the population will not have health insurance available, no matter the regulatory scheme chosen by the Government. This proves the first part of the Theorem.

For the second part, we are referencing specific health benefits, within a system where certain benefits are optional for insurance programs. For example, maybe some plans don't include coverage for prescription drugs while others do (and are, therefore, more expensive). Again, this proof isn't mathematical in rigor, so we will use proof by example. A common benefit used an example of something that should be optional is pregnancy and maternity care. Let's use that.

Consider a system with two health plans, identical except that one includes options coverage of maternity care. There are many sources that discuss the cost of maternity care, but let's assume that an average birth has total medical costs of \$10,000 (a round number [that is fairly realistic](#)). There are

around [4,000,000 babies born](#) in the U.S. each year. We'll say that 1% of people give birth in a given year, again using round numbers to make life easier. A cost of \$10,000 on 1% of the population means that covering maternity care will increase premiums by \$100.

However, remember that people have a choice; many people won't buy the plan with the optional maternity care. For example, men, children and senior would never spent even a fairly trivial amount for this coverage. The people buying the coverage will be far more likely to use it; perhaps closer to 10%. Now, the cost per patient to provide the care will be \$1,000 per year, 10% of \$10,000. Now, even among appropriately-aged women, it only makes sense for a subset to buy this coverage. This is just a death spiral of another sort – the cost of maternity coverage soon will be high enough where it doesn't make sense for anybody to buy it. Giving “everybody a choice” whether to buy maternity coverage has made it so that nobody can (reasonably) buy maternity coverage. The choice was illusory, proving the second part of the Theorem. What applied to maternity care applies to nearly any type of benefit; this shows that the health plans that people buy will always tend towards the “skimpiest” plans allowed by law.

Why did we do this exercise? Well, there is a lot of talk out there about different ways to regulate (or deregulate) our health insurance system. Most of the talk is heavy on technicality, or numbers, or lingo. The idea of our Fundamental Theorem is to get around this and think about the problem qualitatively. If somebody says their plan has “freedom” from an individual mandate, you should think death spiral. If their plan has “choice,” you now know the choice is an illusion. Obviously, the Theorem suggests that health plans should be forced to provide comprehensive benefits and come with an individual mandate – basically, Obamacare. However, the only assumption we needed to show this is the case is that of people rationally acting in their own self-interest.