Interesting applications matter

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Many students despise math. Why? Because, often, it isn't taught well. If students learned interesting applications of math concepts, then they might love the subject. When I was a kid, I used to read books by Isaac Asimov. He is best known for his science fiction writing, but he also wrote books that explained science to a general audience. Some of his stories used math in interesting ways. For example, he explained how trigonometry was used to find out how far away the moon was from the Earth. Basically, we found the straight-line distance between New York and Paris. Next, we pointed two telescopes at the moon, one in New York and one in Paris. Then, we found the angle the telescopes were pointed in. Armed with one distance and two angles, we were able to use simple trigonometry to find the distance of the other two lengths of the triangle, which gave us the distance to the moon. When I was a kid, fascinating applications of math – like the one I just described – caused me to like math. I suspect, if people were exposed to similarly interesting examples and applications, they would like math as well.

In contrast, students tend to like economics – a lot more than they like math anyway. Economics enjoys popularity because it is easy to show students how economics applies to the events that make national news, as well as to the events that influence their personal lives. I was reminded of the pervasive applicability of economics this month while I was buying a new car.

In economics, we use the demand and supply model to illustrate how prices are determined. To illustrate, suppose there are two cars that have identical prices. Further suppose one of these cars is produced by Toyota and the other by Kia. At this price, if people want to purchase more Toyotas than the company has available, then the company will increase its price. Why? Because it can do so and still sell all of its cars, which will increase Toyota's profit. Conversely, if Kia has significantly more cars on its lot than people want to purchase, Kia will drop its price to give people an incentive to buy more cars, allowing Kia to get rid of some of its excess inventory.

The example I outlined above described the car buying situation I observed. Toyota has had production issues that have reduced the number of cars it could build. Toyota cars also have an excellent reputation for quality, so people wanted to purchase many of them. As a result, the Toyota dealership had few cars on the lot. When I went to the car lot, the dealership did not have any Corollas and they had just a few of the model of car that I was interested in. As you might expect, and as economics predicts, Toyota was charging high prices for its cars.

Going to Kia was a different experience. The Kia dealership had a full lot of cars. I am not sure that Kia had so many cars that it wanted to decrease its prices to unload inventory. But Kia did have enough cars that it couldn't get away with increasing its prices like Toyota had – at least, not without losing out on sales and building up its inventory too much.

When students have taken an economics class, they understand how to interpret a wide range of market phenomena. They know that shortages lead to high prices and surpluses lead to price decreases. Luckily for economists, it is extraordinarily easy to find relevant examples of how to apply our concepts in ways that will grab our students' attention. I would argue that math teachers can find intriguing examples and applications that can interest their students. They just have to work harder to do this than economics teachers do, mostly because economic concepts apply to so much of what students experience every day.

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