

Veterinary Economics

Factors that shift the relationship between the price of veterinary services and the quantity demanded

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Three years ago, I adopted a Cocker Spaniel, and since then, walking has become my favorite activity. This has been great exercise and a great way to meet the neighbors. But, during my walks, I have come across few other Cocker Spaniels and, therefore, was surprised to learn that for decades, the Cocker Spaniel was the most popular breed in the United States. This got me thinking about the implications of changes in breed preferences on the demand for veterinary services. In economics, when a widespread change like this occurs over time, we refer to the phenomenon as a change in tastes and preferences. It turns out this and other such changes in demand can change the market price of veterinary services.

A previous article,¹ "What veterinarians can and should know about the price elasticity of demand," examined the relationship between the price of veterinary services and the quantity demanded. As discussed, the price-quantity relationship describes the movement along the demand curve between price and quantity. This is an inverse relationship: as price goes up, the quantity demanded goes down. As one can imagine, however, many factors can affect the price consumers are willing to pay for a specific quantity of veterinary services or, to put it another way, affect the quantity of services demanded at any given price. When these factors change over time, they are referred to as demand shifters.

The easiest to understand of these demand shifters is a change in the population size or the number of consumers. Imagine, for example, a desert oasis with a single veterinarian caring for a small group of clients and their animals. If this particular oasis offers amenities that other oases just cannot match, then over time, it will attract new residents, who will bring their animals with them. As the population increases, so too does the need for veterinary services, and the veterinarian will need to work overtime to meet the higher demand. In the bigger picture, the US population has been growing at an annual rate of 0.7%. So, if nothing else were to change, the US demand for veterinary services should be growing just as quickly.

To understand other demand shifters, think again about the oasis scenario, but imagine that as new residents flocked to the area, new veterinarians arrived at the same pace, so that the veterinarian-to-animal ratio remained constant. In this case, the original veterinary clinic would continue to serve the same number of clients as before, but the demand for veterinary services could still change if the composition of the client population were to change. Perhaps the oasis has gambling casinos, and some clients are hitting the jackpot, so that the average income of clients visiting the practice increases. Or perhaps the casinos are attracting younger workers, decreasing the average age and reducing the average income of the practice's clients. Either way, because of changes in the composition of the client population, the practice would likely see a demand for different amounts or types of veterinary services than they had before.

A third factor that can shift the demand for veterinary services is a change in tastes and preferences, like the shift away from Cocker Spaniels. Because Cocker Spaniels typically have more health problems than do dogs of other breeds, the shift away from Cocker Spaniels may decrease the demand for some veterinary services. Another example of changing tastes and preferences can be seen in food animals, where there has been an increase in the demand for beef from naturally raised, antibiotic-free, grass-fed cattle and eggs from cage-free chickens. This can clearly affect the demand for veterinary services. One last example of changing tastes and preferences is the shift among companion animal owners from treating pets like property to treating them more like family members. This change in attitudes and status affects the demand for veterinary services because owners who consider their pets to be family members may be more likely to take them to the veterinarian and may also be more likely to opt for expensive procedures.

A fourth factor that can change the demand for veterinary services is a change in the price of a substitute good or service. Of course, most substitutes for veterinary services are actually other veterinary services. For example, not all spays are created equal, so spays performed at different clinics can be substitutes for one another. When the price of a spay rises at one clinic, the number of procedures that clinic performs may decrease, causing a noticeable increase in the number per-

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formed at nearby clinics. Also, even when providing the highest standard of care, veterinarians may offer a variety of treatment options involving different procedures or different drugs, with each alternative representing a substitute service. Treatment of osteoarthritis may involve various combinations of physical therapy, weight loss, analgesics, corticosteroids, and, in some instances, surgery, with each of these combinations representing a substitute for the others. Pharmaceutical drugs come in a variety of strengths and brands, so even within drugs there may be substitutes. In the most extreme cases, euthanasia is the final substitute veterinary service for animals, and, unfortunately, an increase in the price of veterinary services may lead to an increase in the demand for euthanasia.

On a lighter note, consider a client who takes a cat to a local clinic for a rabies booster vaccination. Suppose the cost of the booster vaccination is the same this year as it was last year, but the wellness examination fee has increased by \$10 and the clinic requires a wellness examination before a rabies vaccination is given. Then the owner may be less likely to have the cat vaccinated this year, compared with last. In this scenario, the wellness examination and rabies booster vaccination are known as complements. They are often purchased together, and because of this, clients take both prices into consideration when deciding whether to purchase either. So a fifth factor that can shift the demand for veterinary services is a change in the price of a complement good or service.

It turns out that a simple expectation of a future price change can also be enough to shift demand. Returning to the oasis example, it seems likely that even before the population started growing, some residents anticipated that it would become a popular destination. They may also have anticipated that population

growth would cause the demand for veterinary services to increase and, with it, the price of those services. In response, they may have been more likely to opt to have expensive elective procedures, such as a spay, done now, before the population boom, rather than wait and potentially face a higher price in the near future.

One final factor that might shift the demand for veterinary services represents a combination of the second and sixth factors: a change in consumers' expectations of future income or wealth. During the boom years of the oasis, property owners could reasonably have predicted that the value of their property would increase. Some of those property owners could be expected to use the future additional wealth associated with this anticipated increase in property values to purchase additional or more expensive veterinary services today, to save themselves money in the long run.

From these examples, it is clear that many factors can affect the quantity of veterinary services that consumers are willing to purchase at a given price. These factors include market size, income level, tastes and preferences, the prices of complementary and substitute goods, and expectations about future changes in prices, income, or wealth. All of these factors are important when estimating the true demand for veterinary services, and each represents a unique topic for future research. At this time, little is known about the specific impact of each of these factors on veterinary services, but readers should be aware of how changes in the composition of the consumer population can change the demand for veterinary services.

References

1. Johnson SR, Kilkenny M. What veterinarians can and should know about the price elasticity of demand. *J Am Vet Med Assoc* 2014;245:511–512.

This is the second in a four-part series of articles on veterinary economics. Initial results of AVMA studies of the relationship between the price of veterinary services and the quantity demanded are expected to be presented during the Second Annual AVMA Veterinary Economic Summit, in Chicago, October 28, 2014.