Why the Invisible Hand Often Breaks Down

Without question, Adam Smith's invisible hand was a genuinely ground-breaking insight. Producers rush to introduce improved product designs and cost-saving innovations for the sole purpose of capturing market share and profi ts from their rivals. In the short run, these steps work just as the producers had hoped. But rival fi rms are quick to mimic the innovations, and the resulting competition quickly causes prices to fall in line with the new, lower costs. In the end, Smith argued, consumers are the ultimate beneficiaries of all this churning.

But many of Smith's modern disciples believe he made the much bolder claim that markets always harness individual self-interest to produce the greatest good for society as a whole. Smith's own account, however, was far more circumspect. He wrote, for example, that the profit-seeking business owner "intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was not part of it [emphasis added]."

Smith never believed that the invisible hand guaranteed good outcomes in all circumstances. His skepticism was on full display, for example, when he wrote, "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices." To him, what was remarkable was that self-interested actions often led to socially benign outcomes.

Like Smith, modern progressive critics of the market system tend to attribute its failings to conspiracies to restrain competition. But competition was much more easily restrained in Smith's day than it is now. The real challenge to the invisible hand is rooted in the very logic of the competitive process itself. Charles Darwin was one of the first to perceive the underlying problem clearly. One of his central insights was that natural selection favors traits and behaviors primarily according to their effect on individual organisms, not larger groups. Sometimes individual and group interests coincide, he recognized, and in such cases we often get invisible hand-like results. A mutation that codes for keener eyesight in one particular hawk, for example, serves the interests of that individual, but its inevitable spread also makes hawks as a species more successful.

In other cases, however, mutations that help the individual prove quite harmful to the larger group. This is in fact the expected result for mutations that confer advantage in head-to-head competition among members of the same species. Male body mass is a case in point. Most vertebrate species are polygynous, meaning that males take more than one mate if they can. The qualifi er is important, because when some take multiple mates, others get none. The latter don't pass their genes along, making them the ultimate losers in Darwinian terms. So it's no surprise that males often battle furiously for access to mates. Size matters in those battles, and hence the evolutionary arms races that produce larger males.

Figure 1: Hawk

Elephant seals are an extreme but instructive example. Bulls of the species often weigh almost six thousand pounds, more than five times as much as females and almost as much as a Lincoln Navigator SUV. During the mating season, pairs of mature bulls battle one another ferociously for hours on end, until one finally trudges off in defeat, bloodied and exhausted. The victor claims near-exclusive sexual access to a harem that may number as many as a hundred cows. But while being larger than his rival makes an individual bull more likely to prevail in such battles, prodigious size is a clear handicap for bulls as a group, making them far more vulnerable to sharks and other predators. Given an opportunity to vote on a proposal to reduce every animal's weight by half, bulls would have every reason to favor it. Since it's relative size, not absolute size, that matters in battle, the change would not aff ect the outcome of any given head-to-head contest, but it would reduce each animal's risk of being eaten by sharks. There's no practical way, of course, that elephant seals could implement such a proposal. Nor could any bull solve this problem unilaterally, since a bull that weighed much less than others would never win a mate.

Similar conflicts pervade human interactions when individual rewards depend on relative performance. Their essence is nicely captured in a celebrated example by the economist Thomas Schelling. Schelling noted that hockey players who are free to choose for themselves invariably skate without helmets, yet when they're permitted to vote on the matter, they support rules that require them. If helmets are so great, he wondered, why don't players just wear them? Why do they need a rule?

His answer began with the observation that skating without a helmet confers a small competitive edge—perhaps by enabling players to see or hear a little better, or perhaps by enabling them to intimidate their opponents. The immediate lure of gaining a competitive edge trumps more abstract concerns about the possibility of injury, so players eagerly embrace the additional risk. The rub, of course, is that when every player skates without a helmet, no one gains a competitive advantage— hence the attraction of the rule.

As Schelling's diagnosis makes clear, the problem confronting hockey players has nothing to do with imperfect information, lack of self-control, or poor cognitive skills—shortcomings that are often cited as grounds for government intervention. And it clearly does not stem from exploitation or any insufficiency of competition. Rather, it's a garden-variety collective action problem. Players favor helmet rules because that's the only way they're able to play under reasonably safe conditions. A simple nudge— say, a sign in the locker room reminding players that helmets reduce the risk of serious injury— just won't solve their problem. They need a mandate.

Individual and Group Interests Often Diverge

In many cases, Darwin recognized, the same variant that served the individual's interest would also serve the interests of its species. But he also saw that many traits promoted individual interest to the detriment of the species.

As an example in the former category, consider the speed of the gazelle. Mature members of this species can sustain speeds of 30 mph for extended periods and can reach 60 mph in short bursts. How did they become so fast? It might seem that being faster would be unambiguously better from an evolutionary point of view, but that can't be true or else all species would be fast. Tapeworms are slow. In their particular environmental niche, however, being fast never really mattered. Gazelles are fast because they evolved in an environment in which being faster than others was oft en decisive for sur-vival. The gazelle's predators, which include the cheetah, are also very fast, and there are few places to take shelter on the terrain where both groups evolved. Slower genetic variants among the modern gazelle's ancestors were more likely to be caught and eaten.

Since the selective pressure that forged speed in gazelles was the threat of being caught by predators from other species, greater speed posed no conflict between the interests of individual gazelles and those of gazelles as a species. Up to some point, being faster conferred advantages for both individual and species. With respect to this particular trait, then, Darwin's natural selection narrative closely tracks Smith's parallel invisible-hand narrative about the proliferation of cost-saving innovations and attractive new product designs.

Many other traits, however, increase the reproductive fitness of each individual while simultaneously imposing signifi cant costs on the species as a whole. Such

conflicts are especially likely for traits that confer advantage in an individual's head-to-head competition with members of its own species.

A case in point is the outsized antlers of bull elk. These antlers function as weaponry not against external predators but in the competition among bulls for access to females. In these battles, it's relative antler size that matters. Because a mutation that coded for larger antlers made a bull more likely to defeat its rivals, it was quick to spread, since winning bulls gained access to many cows, each of whose calves would then carry the mutation. Additional mutations accumulated over the generations, in effect creating an arms race. The process seems to have stabilized, with the largest antlers of North American bull elk measuring more than 4 feet across and weighing more than 40 pounds.

Although each mutation along this path enhanced individual reproductive fi tness, the cumulative effect of those mutations was to make life more miserable for bull elk as a group. Large antlers compromise mobility in densely wooded areas, for example, making bulls more likely to be killed and eaten by wolves. A bull with smaller antlers would be better able to escape predators, but because he'd be handicapped in his battles with other bulls, he'd be unlikely to pass those smaller antlers into the next generation.

In short, bull elk face a collective action problem. One bull's larger antlers make him more likely to win a fight, but they also make his rivals more likely to lose that same fight. The individual payoff to having larger antlers is thus substantially larger than the collective payoff. As a group, bull elk would be better off if each animal's antlers were much smaller.

When we look at the marketplace, there are so many situations that are exactly analogous to arms races that led to big antlers in the bull elk. I think in time we will come to recognize—those who haven't already—that there shouldn't be any presumption at all that competition leads in general to good results for the group.

The businessmen who built big signs along Route 13 driving south out of Ithaca haven't created that unbelievably ugly corridor because they had bad taste. For a sign to be effective they knew that it had to stand out relative to the other signs in close proximity. That means it must be taller, stick out farther, have brighter lights. Given that it's the relative visibility of the sign that counts, of course you're going to get an explosive outpouring of ugly signs when the dust settles. The only way that you don't get that is to pass regulations that limit the size and shape and composition of signs, which many communities obviously do.