Thinking About Incentives...

Incentives are mechanisms by which we attempt to shape behavior. By promising rewards contingent on specific behaviors, we aim to elicit more of those behaviors, and we threaten punishment for behaviors we seek to reduce. Incentives are everywhere: in our classrooms, in our salaries and bonus structures at work, and in the places we shop. They are codified in our laws and embedded in international policies and regulatory frameworks.

Indeed, incentives are so ubiquitous that it's difficult to identify which principles of incentive system design lead to success. But good design is critical. Get the incentives wrong and you have teenagers operating SAT cheating rings on Long Island , or homeowners taking out easy second, third and fourth mortgages to buy houses they can't afford. Financial markets rarely nosedive without misaligned incentives somewhere in the system. But get incentive design right and you can bring back species from near-extinction, attract the best and brightest candidates to critical job sectors, and keep more impoverished children in school.

A variety of incentive design issues have been addressed by researchers and practitioners in economics, psychology, business, and public policy. Whether you are designing incentives for a community, an organization, the family, or even yourself, consider these recommendations.

INCENTIVIZE SPECIFIC BEHAVIORS, NOT JUST OUTCOMES

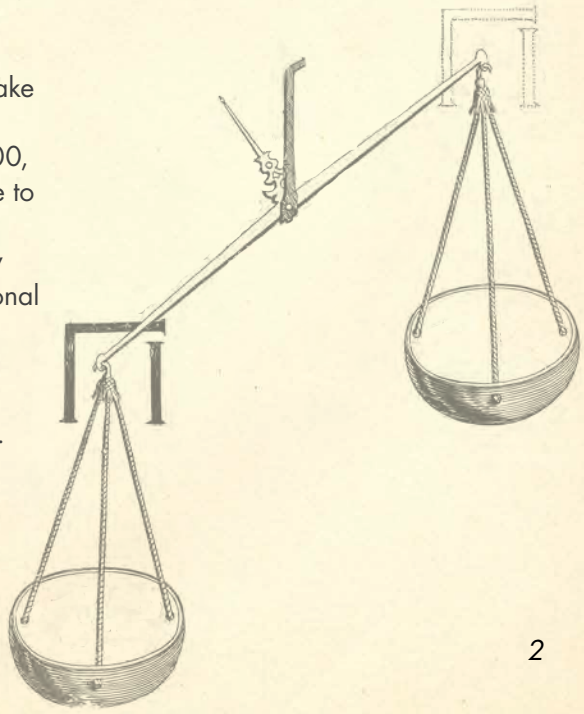
Incentives work best when they reward or punish specific, defined behaviors rather than generalized outcomes. Economist Roland Fryer ran randomized incentive experiments in public schools in New York, Chicago, Dallas and Washington, D.C. in which he varied whether students were paid for specific behaviors, like attendance, good behavior or reading books versus outcomes like grades or test scores. He found that *financial incentives for outcomes did not increase academic achievement* as measured by tests of reading comprehension and math. But *paying students to read books or improve their attendance and school behavior significantly boosted performance in reading and math.*

Why the difference? Perhaps because students understand exactly what they need to do to read a book, come to school, and follow the rules, but they may be less clear about what exactly will earn them better grades or test results. Another important note: rewarding outcomes, rather than defined behaviors, invites people to get creative with how they achieve those outcomes (a.k.a. cheating).

GET THE SCALE RIGHT

What payoff or penalty is enough to motivate someone to change their behavior? And how do you create incentives that are both effective and fair across different socioeconomic groups? In Finland and several other northern European countries, governments have instituted fines that operate on a sliding scale according to income. These so-called "day-fines" represent a fraction of a person's daily disposable income. In 2013, a Swedish business executive was fined the equivalent of $130,000 for going 77 km/h in a 50 km/h zone in neighboring Finland. At the other end of the income scale, the same infraction would result in a penalty under $10. The data are still out on whether day fines work better than flat fines at reducing speeding and other infractions; their appeal may lie more in their equity.

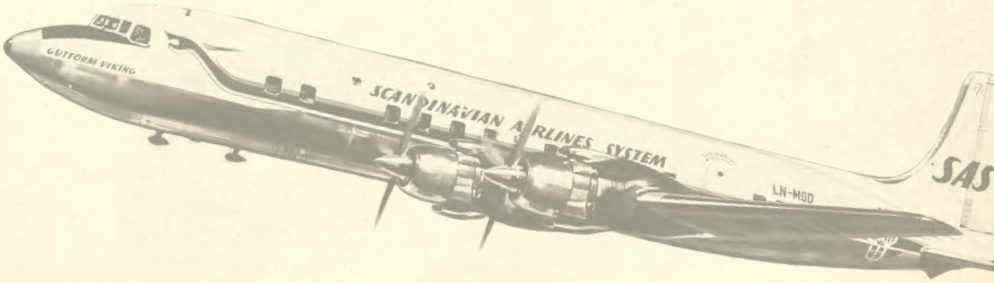
On the reward side, lotteries are one solution to the scale problem, especially in budget-constrained systems. A $5 reward given to each of 100 people might not seem very motivating. But take your $500 budget and make the incentive a 1-in-20 chance to win $100, and the appeal increases, in part due to our tendency to overly weight small probabilities. Economist Emily Haisley and her colleagues found that traditional types of lotteries that offer a small chance of a high reward may be particularly useful for increasing motivation in low-income populations.



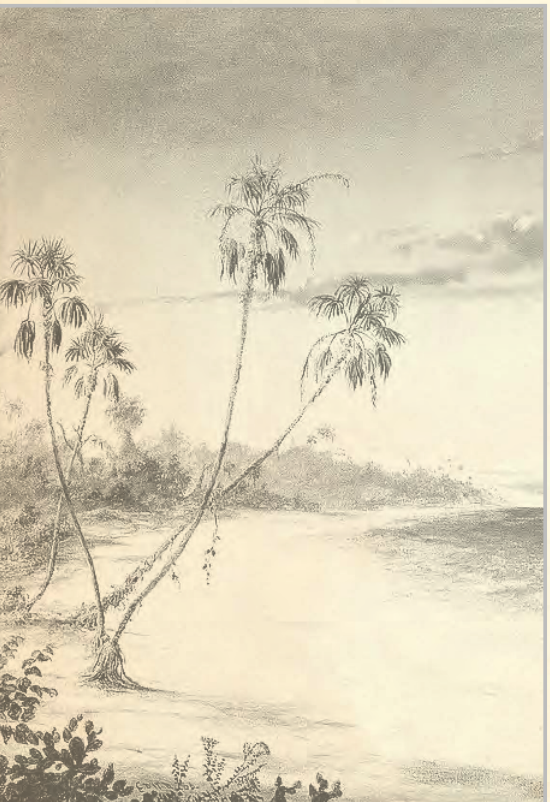
USE REWARDS THAT ARE SCARCE OR PROVIDE VALUE IN MULTIPLE WAYS

Every December, frequent fliers make extra trips for the sole purpose of vaulting into the next status tier. The airlines dangle an incredibly scarce resource – the promise of an upgrade into first or business class – as an incentive to fly more. Because the only other way to get into first- or business-class is to pay thousands of dollars per ticket, the potential upgrades that come with higher status are a scarce – and valuable – resource that people will pay more and work harder to get.

Another scarce reward – access to the HOV or carpool lane for fuel-efficient cars with only one driver – also carries a strong social signal. California's little yellow stickers were awarded to the first 85,000 hybrid car buyers; not only did they shorten commute times during rush hour, but they also announced the driver's eco-friendliness in the parking lot. (Note that this mattered more for early hybrid models that didn't have the unique look of the Prius.) And those stickers turned out to have a monetary worth as well – used hybrid cars *with* the sticker sold for $4000 more than similar models that had no sticker.



THINK BEYOND CASH



Many companies use incentives to inspire their sales teams to work harder and achieve ever-higher targets. But what incentives work best? Goodyear Tire and Rubber Company ran an elegant set of experiments in the 1990s to answer this question. They divided their retail teams into two groups that demonstrated roughly equal performance. One group was promised monetary incentives for increased sales, while the other was promised tangible rewards of travel or merchandise, which were purposefully somewhat difficult for the salespeople to price.

The group incentivized with "tangible" rewards increased sales by 46 percent more than the monetary rewards group. One possible explanation for the difference might lie in problems with the fungibility of cash. Money can be used to pay the rent or electric bill just as easily as it can fund a vacation. Using needed cash for something fun when you feel you *should* be using it more responsibly might create feelings of guilt. But a trip to Hawaii is just a trip to Hawaii – it can't be used for anything else. And imagining a trip to Hawaii is probably a lot more fun than contemplating an few hundred extra dollars in your paycheck!

FOCUS ON THE SHORT TERM, BUT CONSIDER LONG-TERM EFFECTS

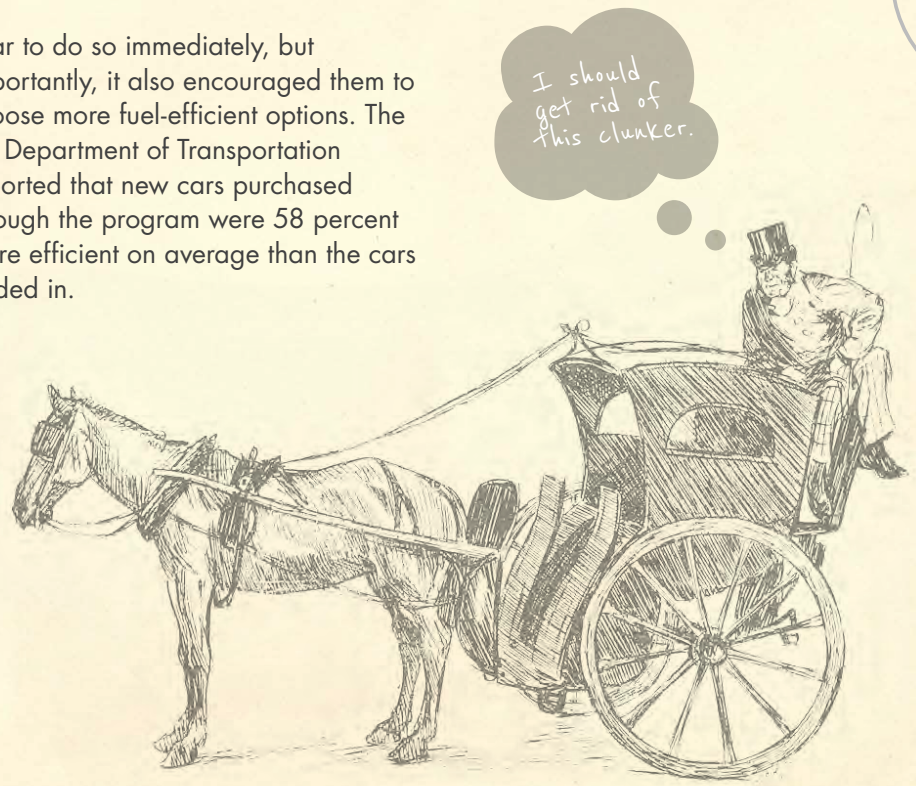
Incentives focused on changing short-term behavior are among the most effective, in part because you don't have to worry about how to reward people indefinitely for good behavior or enforce punishments far into the future.

Yet gains made in the short run can hamper outcomes over the long run. Economist Stephan Meier found that "matching" donations made by an anonymous donor to incentivize other people increased charitable giving in the short run, but decreased giving after the matching program ended – *so much so that the matching program actually produced a negative effect on donation rates overall.*

Incentive system designers often struggle to balance short- and long-term effects. For example, some universities now list the number of *consecutive* years an alumnus has donated to the school. Miss a year, and you fall back to zero, potentially losing social standing amongst your fellow alumni. This system incentivizes consistent long-term behavior and can also be combined with incentives that target short-term behavior.

REINFORCE AND BOOST EXISTING GOALS

Incentives can work well when they provide a boost – a little activation energy—to help people move towards a goal they already have in mind. The US government program CARS (Car Allowance Rebate System), widely known as "Cash for Clunkers," offered financial incentives ($3500-4500) for trading in older, fuel-inefficient vehicles for newer cars with much better mileage ratings. The program aimed to stimulate an ailing economy and improve the fuel consumption of cars on American roads. The program burned through $1 billion in incentives in its first five days and lasted less than a month due to high demand. CARS almost certainly spurred people who were already planning to buy a new vehicle in the next few months or year to do so immediately, but importantly, it also encouraged them to choose more fuel-efficient options. The US Department of Transportation reported that new cars purchased through the program were 58 percent more efficient on average than the cars traded in.

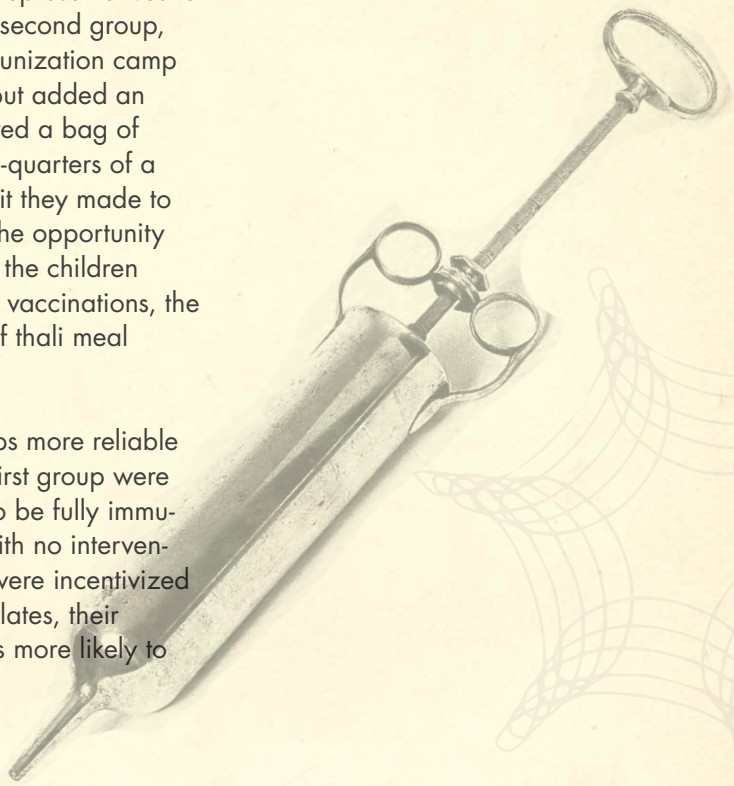


CONSIDER OPPORTUNITY COSTS

Sometimes opportunity costs are all that stand in the way of people doing the right thing – for their health, their children's education, or their community. A study in rural Udaipur, India found that only 2 percent of children received the entire recommended course of childhood vaccinations. Researchers also learned that 45 percent of the health workers responsible for vaccinations were absent on any given day, which further increased the opportunity costs parents incurred to leave work and take their children to a clinic.

The researchers worked with two groups of clinics to improve vaccination rates. In the first group, they set up a mobile immunization camp on a fixed day of the month, verified the presence of health workers, and collaborated with local representatives to get the word out. In the second group, they used the same immunization camp structure as in the first, but added an incentive: parents received a bag of lentils worth about three-quarters of a day's wage for each visit they made to the clinic to help offset the opportunity costs of missing work. If the children completed the course of vaccinations, the parents received a set of thali meal plates.

Simply making the camps more reliable helped: children in the first group were 2.69 times more likely to be fully immunized than in villages with no intervention. But when parents were incentivized with lentils and dinner plates, their children were 6.19 times more likely to be fully immunized.



WATCH WHAT YOU SIGNAL

Monetary incentives can produce social signals that have adverse effects on the behavior the incentive is designed to change. In a study on "Not in My Backyard" (NIMBY) projects, two Swiss economists interviewed citizens in communities designated by the government as potential sites for the storage of low- and mid-level radioactive waste. When asked whether they would vote to accept the site in an upcoming referendum, just over half agreed. But when they were told that the Swiss Parliament would offer them a cash incentive of several thousand dollars to accept the site, *the level of acceptance dropped to just under 25 percent.* The authors concluded that "citizens may take the offer of a generous compensation as an indication that the facility is more hazardous than they previously thought. " Monetary incentives like these can send negative signals about the behavior being incentivized – that it's dangerous, hard, dirty, or otherwise unpleasant.

APPLY INCENTIVES WHEN "FRAGILE NORMS" ARE IN PLAY

When norms are fragile – when attitudes are shifting, divided, or confused – small incentives can have outsized effects. Legal scholar and *Nudge* author Cass R. Sunstein notes that,

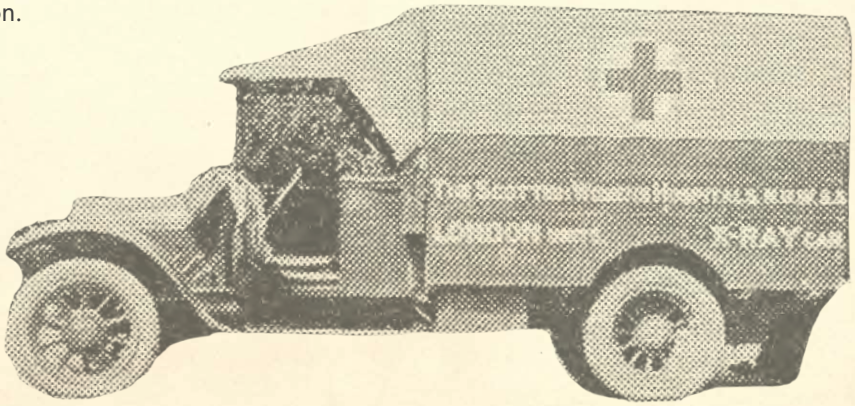
"Existing social conditions are often more fragile than might be supposed, because they depend on social norms to which – and this is the key point – people may not have much allegiance. What I will call norm entrepreneurs – people interested in changing social norms – can exploit this fact. If successful, they produce what I will call norm bandwagons and norm cascades. Norm bandwagons occur when small shifts lead to large ones, as people join the "bandwagon"; norm cascades occur when there are rapid shifts in norms."

Think about the norms associated with picking up after your dog in public spaces. Twenty years ago, some people might have argued to let dogs be dogs and do their thing where they chose, while others advocated keeping public spaces free of dog droppings. But once cities and parks instituted even small fines for not cleaning up after your dog, the related social norms shifted very rapidly – even when the fines were rarely enforced. It was as if the fines signaled that one set of norms had decisively won out. The current, fast-moving debate about talking on the phone or texting while driving is a similar case in point.

DON'T "CROWD OUT" BETTER MOTIVES

In his critical work of social theory, Richard Titmuss argued that providing monetary incentives to blood donors may "crowd out" more moral or social motives among potential donors. People might give blood (or recycle or volunteer) as a way of signaling to others that they are good people with good values. Introducing a financial reward could confuse the social signal *("Will they think I'm doing this just for the money?")* Interestingly, while monetary incentives do seem to reduce blood donor participation, other rewards like t-shirts and coffee mugs do not.

Crowding out can also happen when extrinsic incentives overwhelm intrinsic motivations. In a large body of research, psychologists Richard Ryan and Edward Deci explore how tangible incentives decrease internal motivation – and often impair performance on tasks that demand creativity, complex thinking, conceptual learning, and/or a willing commitment of time and energy. They and their colleagues have found that rewards, threats, deadlines, directives, and competition can all diminish intrinsic motivation.



BEWARE OF UNINTENDED CONSEQUENCES

Perverse incentives have unintended negative consequences. They often result when incentives reward an outcome, rather than a behavior, and when there are alternative, undesirable ways for people to achieve the outcome (and reward!). In one of the most famous examples, a French colonial program to rid Hanoi of rats promised a bounty for each rat tail. But instead of incentivizing Hanoi citizens to kill rats, it incentivized would-be entrepreneurs to start raising rats at home.

Some incentives become perverse because they reward outcomes (numbers of rat tails) rather than behaviors (killing city rats). If people can get to the outcome an easier way, they often will. But other incentive systems go awry when the incentives reward a behavior that can be repeated (and rewarded) without achieving the desired goal. In the US, doctors are frequently paid for the numbers of procedures they do, rather than for better health outcomes for their patients. In a now-famous piece in *The New Yorker,* Dr. Atul Gwande investigated what was behind healthcare costs in McAllen, TX, where per capita spending on healthcare was nearly twice as high as in nearby El Paso. He concluded that physicians in McAllen were ordering far more diagnostic tests, hospital admissions, operations, and other procedures but their outcomes were actually worse than in El Paso. The reason: McAllen doctors had established practices and referral systems that maximized reimbursable procedures, but no one was tending to overall patient outcomes.

The designer of incentive systems always needs to ask: What are we really rewarding (or punishing) here? Is there an easier way for people to get the reward (or avoid the punishment), thereby hampering our true goals?

Question the ethics of incentive systems

In her book *Strings Attached,* philosopher Ruth Grant suggests that we tend to see incentives as a form of voluntary trade – an independent choice made in return for something we want. But she warns that imbalances of power can raise important ethical issues even when a choice appears to be voluntary. She suggests that we judge the ethical quality of an incentive system on three standards: legitimacy of the incentive's purpose, the autonomy involved in choosing to accept an incentive, and the effect on the character of the parties involved.

One of the incentives she questions most deeply is plea bargaining, in which people accused of crimes are offered the chance to plead guilty rather than risk greater punishment in jury trials. In the US, fewer than ten percent of felony prosecutions go to trial. Grant says that while defendants appear to be free to choose whether they want to accept the plea bargain or not, we should be deeply concerned about offering the plea bargain as an incentive. She claims that plea bargains do not have legitimacy of purpose, because the purpose of the criminal justice system is "to ascertain the facts according to the evidence and to assign punishment proportionate to the crime for the sake of protecting the public." The plea bargain incentive rewards expediency, not justice, and is therefore illegitimate.

HELP PEOPLE INCENTIVIZE THEMSELVES

Making bad decisions is surprisingly easy—and often incentivized! Consider KFC's recent promotion that offered a double chocolate chip cake free with the purchase of a 10-piece (or larger!) chicken meal! It's almost as if we need to incentivize ourselves in order to avoid falling prey to the temptations around us. The website stickK.com helps individuals do just that. StickK users set up commitment contracts to change a particular behavior over a specific length of time. They sign a legally binding contract to send their money to a designated person, charity, or "anti-charity" – often a group whose ideals the user finds abhorrent. With the promise of punishment (required payment) in place, users can engage supporters to encourage them and choose a referee to decide if they have followed through with their commitments. Today, stickK.com states that users have put more than $17.5 million on the line, and the site claims (at least some) credit for 2.5 million cigarettes *not* smoked!

Types of incentives

Incentives are contingent promises designed to motivate people to take actions they will be rewarded for, or avoid actions they will be punished for. Formal incentives are codified. They include payments for work, fines for violating rules, discounts that encourage buying behavior, and rebates or tax breaks for engaging in socially sanctioned behaviors. Many formal incentives are monetary, but they can take many other forms, including vouchers, t-shirts, air miles, iPads, lottery tickets, and defined privileges (e.g., carpool lane access).

But not all incentives are so formal. If we think about what people are willing to work for, or alter their behavior for, it's clear that people will change their behavior to gain social affirmation or avoid condemnation. These social or moral incentives may be well understood at a deep level by community members, even if they are not explicitly defined as contractual rules.

We will also work for natural or intrinsic incentives – for fun or novelty, a chance to satisfy our curiosity, the thrill of competition, a desire for justice, or the accomplishment of overcoming a challenge. We will alter our behavior in order to avoid negative emotions like fear, disgust, or anxiety. Some studies have even shown that people will pay to punish others who are cheating at a game.

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