Littering Solutions Leveraging Behavioral Game Theory

Artist's Statement

This piece was written for my Strategic Decision Making course (88-255) as a memo advising a business on a strategic problem they are facing. The problem and solution principles are rooted in behavioral economics and game theory. However, they are clearly presented and analyzed so that the advisee, who has no knowledge of the principles, can understand the problem's evaluation. Providing a comprehensible analysis ensures that the advisee understands the issue's scope and how to effectively implement the proposed solution.

Situation:

Apartment residents are littering the shared outdoor spaces and damaging the image of the Luxury Condominium. Property Manager, Joseph Richards institutes a $5.00 fine for residents found littering. After 2 weeks, littering increased. Surprised by this backfiring effect, Richards removes the littering fine, but the littering persists at post-fine levels. Desperate to understand this issue and find a solution, Richards reaches out to Donald Dinerman for strategic advisory services.

Strategic Problem:

Before the fine, residents littered at the risk of the property manager being a *severe enforcer* that will punish them harshly for littering (e.g., eviction). Therefore, there was an equilibrium where residents cautiously littered below Richard's costs of instituting an eviction policy (e.g., getting board approval). Residents were hesitant about littering too much because they were afraid of triggering the potentially *severe* property manager and facing eviction.

However, the fine's implementation costs (e.g., camera monitoring) are less than that of eviction. And while a *severe* property manager would not react to littering exceeding the fine's implementation costs, a *mild* property manager would. Therefore, instituting the small fine reveals information that the manager is a *mild enforcer*, eliminates the information gap regarding the property manager's enforcement type, and leads residents to increase their littering since they no longer have to worry about eviction. After the fine's removal, the information that the property manager is a *mild enforcer* remains, and the littering behavior continues at post-fine rates.

It's also helpful to characterize the residential community as *givers, takers,* and *matchers*. *Givers* won't litter because they are empathetic and understand the negative impact of littering on the community. *Takers* will litter if the cost of potentially getting caught is less than the benefit from littering. *Matchers* will follow the community littering trend. In other words, if others are selfish *takers*, then *matchers* will litter. And if others are considerate *givers*, then *matchers* won't litter. Therefore, any policy decisions must target *takers* to limit their incentive to litter, as *matchers* will follow.

Recommendation:

To refute the property manager's mild characterization, I would advise Richards to institute a \$100 penalty for all residents found littering. Given that this penalty is 20 times larger than the previous penalty , residents may now label Richards as retaliatory and unforgiving rather than purely mild. *Taker* and *matcher* residents will be hesitant to violate the littering policy at the risk of having an even more severe rule imposed. Even if collecting this fine is more costly than the \$100 itself, it should still be enforced because it will communicate the fine's credibility to residents. Once residents respect the fine's credibility, they will stop littering and enforcement costs will decrease. And while \$100 is less costly than an eviction, it is likely to outweigh *taker* residents' value from littering. It's crucial to discourage the *takers* from littering because then the mitigation effects will trickle down to the *matchers,* and the community will be litter-free.