

A Game Theory Analysis Of Team Based Incentivization In Retailing

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Introduction

The connection between incentives and outcomes has long found consistent support in management literature generally (Bartol and Hagmann 1992; Miller & Schuster 1993; Swinehart 1986) and retailing in particular (Banker et al. 1996; Team Pay Case Studies 1997). Later meta-studies strongly support this view. (Condly, Noe and Jackson 2002; Garbers and Konradt 2014). Yet, providing performance-based incentives, at least for rank and file retail employees, still is not common in U.S. retailing and team-based incentives are even rarer.

The next section of this manuscript describes some of the issues with individualized commissions, which though not prevalent in a many product domains, are still dominant in some (cars, furniture and real estate for example). Then, we use game theory to illustrate how employees of retailers using team-based incentives might outperform employees who received no performance incentives and or individualized incentives.

Individualized Incentives

The traditional method of incentivizing retail employees, individualized commission, is very difficult to manage. Where this system is still extant (car and furniture retailers still typically have commission structures for instance), every new customer who comes into the store or lot becomes an *up* with ups queued in a more or less formal or informal system. Customers who ask to speak to a specific salesperson by name are directed to that person, but everyone else is a critical asset that managers need to find a way to distribute equitably among their salespeople. Informal interviews with many of these managers (including a family member who has run several car dealerships) indicate that managers view it as critically important and not coincidentally their biggest headache.

Game Theory Scenario 1: Jumping the Customer and the Pushy Salesperson

In a shopping store in a mall, a home improvement category killer or other types of stores, the allocation of customer assets among employees would be very difficult to manage as customers wander from department to

department and browse, then leave the store, then return. Even in a smaller scale store, a customer might want to browse for a while without assistance, but then have a question or need other help.

In an individualized commission system salespeople would have a very strong incentive to jump the customer, attacking her as she first enters the store and then following her around even if she utters a browsing code like “just looking.” In a simple game theory situation, you have two employees who work primarily or substantially on commission. In a set time period (a shift) 30 customers come in, half of them will buy and half not. If the selling skill is equal (buyers and non-buyers thus being randomly distributed), whoever jumps the most customers will sell the most. A salesperson that hangs out at the front of the store and jumps 20 customers will have an expected sales level double the sales of the other sales person. In this prisoner-dilemma like situation, both will stay right at the entrance of the store and jump anyone who steps as much as one foot inside the door. A corollary to this is that cleaning display cases, stocking inventory, checking dressing rooms, preventing theft and performing other tasks which may be critically important to the retailer organization’s success would be neglected because that type of contribution does not generate commissions.

Each of the salespeople in this game theory example would also have a strong incentive to advocate very aggressively for immediate sales. A typical employee will work at most 35 hours a week, but the retail stores are typically open more than seventy hours a week (even more during the Christmas season). So when customers come into the store, the salesperson’s commission maximizing strategy is to *push* for a quick sale. Retail customers, brought up a laissez-faire retailing environment, are not used to hard closing and sell-now-at-all-costs salespeople. Over twenty years of teaching retailing I have asked several thousand students how they react to this type of retail environment. Students often cite as an example a store in the local mall where salespeople work on commission. Though there were a significant percentage of students who prefer stores where salespeople are on commission, the great majority of students have responded negatively to both jumping and pushiness. While it may be rationally correct to the salesperson, herself, to aggressively pursue the immediate sales, most retail organizations rightly feel they will lose more business in the long term—even if the salesperson achieves success in the short run.

Team-Based Incentives

Fortunately, modern payroll management techniques allow retailers to tie payroll to sales revenue, which permits the instituting of collectivized incentive systems. In the simple example above with two employees of equal skill and experience, sales commissions on all sales during the shift would be split evenly by both of them. Banker et al. (2009) call this a

“visible line of sight incentive” arguing that incentives where the employee cannot easily connect her behavior to the incentive due to scaling issues (a long time frame or a large pool of people sharing in the distribution) will not be as effective as incentives where the employee feels there is a direct connection between her contribution and her reward. This team-based incentive would solve the jumping issue right away, as neither would get any advantage by gaining customers at the expense of the other. It would also greatly attenuate the incentive to aggressively push for a quick sale and more closely align workers incentives with the retail organization’s long-term goals (e.g. repeat patronage, customer satisfaction) while simultaneously taking away the disincentive to spend time on important tasks not directly related to sales.

Game Theory Scenario 2: Unequal Skills Distribution

Collectivized incentive systems also allow for more specialization. Take the situation described before, but this time let’s make one worker more skilled and experienced and designate the other as a rookie or trainee. The workers receive a base salary, but also receive a short line of sight team incentive wherein commissions on all sales go into a pool to be shared by all workers clocked in at that store when the sale occurred. Just as strikers command more salary than backs on football team, experienced workers can be given more shares and take on more complex tasks while newer, less skilled, less experienced workers would be given fewer shares. Pirates and privateers had a detailed, but fixed system of splitting shares where a bosun’s mate got more than able bodied seamen who got more than idlers, wasters and cabin boys. In an age of tremendous prejudice, Moby Dick’s dark skinned, pagan harpooner, Queequec, signed on for a 30th part of profits while our intrepid interpreter Ismael felt lucky to get a 300th part. In the retailing example our skilled worker might get 1.5 shares while the rookie got a half-share. Since who does what in any particular situation does not make any difference in terms of pay to each employee who does what in any particular example, the experienced employee would spend most of her time with customers while the other employee might focus on lower level skills like running the cash register and only help customers when necessary. Unskilled workers would have an incentive to learn and grow as employees by observing the more skilled employees. In this game theory example, the more skilled employee would have an incentive to mentor, coach and otherwise help the rookie employee because in situations where two or more customers enter the store at once, the skilled employee’s remuneration is directly impacted by how well the rookie handles her customers.

To see how this might play out in game theory, let’s say four customers come in at once with one kicking the tires type of customer who only wants to browse, (Browser), two goal directed shoppers who will need minimal assistance, and one high maintenance, but high reward customer (Queen). In an individual commission scenario the rookie might jump the Queen or

a regularized up system might randomly assign customers to salespeople in a sub-optimal way. Customers 3 and 4 would normally have to wait until the salespeople had finished helping the first two customers, an arrangement that might not suit the Queen. With a team incentive where each employee got a share of the sale while on the clock no matter who actually helped the customer or actually closed the sale, game theory would suggest the probability of optimization is much greater. It might involve the high skill employee helping the Queen with the rookie focusing on the providing the minimal assistance necessary for the self directed shoppers while letting the Browser look around by herself until she indicated that she needed assistance. In this and other situations team rewards incentivize salespeople to switch allocations (called TOing in sales jargon) if it became clear that they had initially misjudged the customers, suggest accessories beyond the original purchase need (Upselling), optimize task allocation (with the rookie focusing on routine tasks and the skilled employee complex interpersonal challenges) and practice other advanced techniques which lead to increased sales, enhanced customer satisfaction and greater work flow efficiency. At the same time, the maladaptive behaviors reinforced by individualized commissions described in Scenario 1 would be less likely to occur.

Game Theory Scenario 3: Free Riding

One frequent criticism of team-based rewards is the issue of the free-rider. Marketing and business students have a lot of experience with group projects where one or more person does not do their part. My retailing students have an assignment where they write about their current boss's biggest weakness/mistake/failure. Their managers' inability or unwillingness to do any about a "lazy, good for nothing" fellow employee has always been the most common or second most common theme for the twenty years I have been reading/grading that assignment.

In this game theory example, the retailing domain is a DIY store with six separate departments, but only one centralized set of checkout counters. Typical staffing at any given point in time would involve about one or two sales specialist staffing each department, but with the store open over 100 hours a week, at least four 35 hour a week employees would be needed for each department. In four of the six departments all of the employees are very good, competent, helpful and enthusiastic, but in two of the departments one employee is both technically incompetent and poorly motivated (or even motivated to do bad things like be rude to customers).

Under an individual incentive system where each employee receives a bonus for his or her sales, the two departments with a single poor employee will suffer poor sales results. His co-employees may notice what is going on. They may hear negative comments from customers to whom he was rude or they may see examples of sloth or recognize incompetence or poor judgment in product recommendations. Nevertheless, they have

little rational incentive to investigate, take an account of or report things to management. Management might notice of the problem employee or they might not and they might do something to fix it or they might not. If we designate the probability of discovery as α and the probability of effective intervention designated as σ , then the probability of solving the problem is α times σ . In a team-based incentive arrangement where substantial bonuses are given for attaining departmental sales targets and other goals, the malcontent's co-employees would have a strong incentive to identify the poor worker and to seek a within group solution (demand that he shape up or else) or bring the issue to management *and press them to do something about it*. Thus, both α (identification of the poor employee) and σ (management fixing the problem) would be greater in a team reward system than it would under the individualized (or a zero incentive) system.

Conclusion, Limitations and Future Research

The game theory examples explained in this manuscript describe realistic but artificial scenarios where game theory suggests team-based incentive systems would lead to improved performance. Nevertheless, the scope of application may not be extensive and there are certainly retail task environments where the implications do not apply. In retail product domains like furniture, automobiles and residential real estate the single agent, straight commission model has prevailed for many years and is likely to continue. A Walmart or a chain grocery store will be unlikely to implement short line of sight, team-level incentives because rank and file employees have simple task environments, and customers primarily make routine, low involvement purchase decisions.

Similarly, retailers would be hesitant to implement a short line of sight team incentive in countries or states where the minimum wage is close to or above the typical marginal revenue product for retailers' rank and file employees. Though currently in most of the U.S., the minimum wage is very low relatively and even large scale employers with the simplest skill requirements like McDonalds and Walmart have recently (and very publicly) raised wages, some states and cities have much higher minimum wages. Our game theory examples thus suggest that team-based incentives will work best in (1) task environments where skill, ability and drive significantly impact sales, customer satisfaction and other outcomes (2) the worker can connect her behavior and that of her immediate colleagues to tangible rewards and (3) the marginal revenue product for a typical rank and file employee is high enough to permit significant incentivization.

This manuscript also did not compare large to moderate to small levels of incentives or describe the optimal method of distribution (other than to say it did not have to be equal). It also did not take into account myriad potential moderating variables other than product domain and task

environment. More theoretical and empirical research is clearly needed to answer these questions.

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References

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