# Paying $30,000 for a Gold Star: An Empirical Investigation into the Value of Peer Recognition to Software Salespeople

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This study estimates the value salespeople at a leading enterprise software vendor place on winning a major award: induction into the vendor's annual "Sales Club," which is awarded to the top 10% of salespeople each year. The "Sales Club" carries no monetary prize, and largely only confers peer recognition on winners, such as a company-wide email from the CEO identifying winners and the placement of a "gold star" on winners' business cards. We rely on the non-linear nature of the vendor's sale incentive scheme, and the fact that all salespeople are told how close they are to the 10% threshold at the end of the third quarter each year, to identify salespeople who face a discrete choice: close deals in the fourth quarter to increase the likelihood they will make the "Sales Club," or delay deals until the first quarter of the following year and earn greater commissions. Using standard revealed preference techniques around these choices, we estimate that the average salesperson places a value of $27,000 on admittance to the "Sales Club." We also show that admittance to the "Sales Club" carries no identifiable benefits in terms of future sales, commissions or job mobility, suggesting this $27,000 valuation is composed entirely of non-monetary factors. Since male salespeople and those with higher tenure value the award significantly more than female salespeople or those newer to the organization, we suggest that a desire for competition, and not a drive for status or legitimacy in the organization, underlies these results.

## *1. Introduction*

Social scientists have long known that employees care about how their peers view them. Maslow's seminal "*Theory of Motivation*" (1943) theorizes that "respect of others" is of prominent motivational importance once a person has fulfilled her need for belonging with friends and family, and Festinger's "*A Theory of Social Comparison Processes*" (1954) describes the importance of comparisons to referent peers as a key driving force that affects people's decisions in a number of dimensions. A large body of subsequent empirical research has demonstrated that employees work harder when high-skilled peers are watching (e.g. Mas and Moretti, 2009), volunteer time and effort when it will be recognized by important peers (e.g. Hars and Ou, 2001), make value destroying decisions when faced with comparisons that suggest a lack of peer recognition (e.g. Garcia et al, 2006), exude lower effort when unfavorable peer comparisons are made (e.g. Barankay, 2010), and even cheat in order to increase peer recognition (e.g. Edelman and Larkin, 2010).

But will employees *pay* for peer recognition? And will they do so in situations where other extrinsic rewards, such as monetary rewards or career success, do not accrue to increased peer recognition? There are a small number of laboratory studies examining this question (e.g. Huberman et al, 2004), but measuring the value in monetary terms of peer recognition in real-world employment settings is difficult simply because there are few if any ways that employees can directly use the price mechanism to increase their recognition by peers. This research examines one such situation, where a subset of employees face a discrete choice between improving their pay and increasing the probability they will earn peer recognition.

Specifically, we examine decisions by salespeople when they must decide between increasing their sales commissions on a particular deal, or decreasing their commissions and in turn increasing the likelihood they will win a highly-visible and sought after award: induction into the company's "Sales Club," given annually to the top 10% of salespeople at an enterprise software vendor that provided data for this research. Most business-to-business sales organizations use an "award club" or "sales club" for

high-performers (Heidi, 1997), giving the award a grandiose name like "Circle of Excellence" or "President's Club." The observed choices of salespeople who are close to winning the award late in the year, but who must go against their short-term financial interests to win the award, allow us to statistically estimate a "willingness-to-pay" valuation for the award in dollar terms. We can also use data on the future sales, commission and career success of award winners to estimate the longer-term financial returns to winning an award.

Specifically, the enterprise software vendor in this study uses commission "accelerators" over the course of the financial quarter, meaning that salespeople with a large volume of sales in a quarter get higher commissions on any additional sales in that same quarter. For the exact same deal, a salesperson can earn a commission of up to 20 times more than the base commission if done in a "big" quarter for the salesperson, as opposed to a "small" one. The non-linear nature of the commission system means that, near the end of every year, a small number of salespeople face a decision between doing a deal by the end of the year for a lower commission but that counts towards their "Sales Club" induction statistics, or delay the deal and potentially earn a much larger commission. We use revealed preference techniques from marketing and transport economics (e.g. Allenby and Rossi, 1999) to explicitly model these observed decisions and statistically estimate the commission difference at which a salesperson is indifferent between the greater commissions and entrance into the "Sales Club."

The results of the above analysis are striking. We find that the average salesperson "at risk" of making the "Sales Club" at the end of the year, and facing the type of choice described above, is willing to pay over $27,000 to increase her chances of winning the award. These results are robust to alternative explanations and placebo testing of effects elsewhere on the sales distribution (and therefore not involved in any award setting). We also find no long-term difference in sales, commissions, promotions or voluntary company departures for salespeople who win the award compared to salespeople who very nearly win the award but do not. This suggests that the $27,000 valuation for the award may come only from the award's non-monetary benefits: an email from the company CEO to all employees listing the year's award winners; the placement of a gold star on the salesperson's business card and stationery; and

a three-day trip to a Caribbean or Hawaiian resort with other award winners, which costs at most $2,000 per person. One award winner interviewed about his decision to forego over $20,000 in commissions to ensure he made the "Sales Club" aptly said, "I paid $20,000 for that Gold Star. And it was worth it," demonstrating at least his view of the behavior investigated in this study.

We attempt to unpack the reasons a salesperson would forego almost $30,000 in commissions in order to make the "Sales Club" by focusing on two hypotheses about this behavior: a desire for status or legitimacy, even apart from monetary rewards, and the desire to compete with colleagues and come out on top. We find evidence that competition, not the seeking of status or legitimacy at the workplace, drives the decisions of salespeople who forego commissions in order to make the "Sales Club." Men, who have been shown to be much more competitive than men in workplace settings (Niederle and Vesterlund, 2007), have a calculated willingness to pay for the award which is over twice as much as women. Women salespeople are a definite minority in the company, representing less than 10% of salespeople, but the large gender difference in valuation suggests that women do not seek increased status or legitimacy by winning the award. Similarly, we find a positive relationship between willingness to pay for the award and salesperson tenure; newer salespeople appear unwilling to pay as much for the award as salespeople who have been employed at the vendor for a significant amount of time. These results again suggest competition, and not status seeking, underlies the results.

The paper is laid out as follows. The next section provides brief background information on the software vendor, its incentive system and the "Sales Club" award. Section 3 lays out theory and hypotheses to be tested. Section 4 overviews the data and identification strategy, and presents the results. In the final section, we discuss implications and ideas for future research.

## *2. Background on the company and award*

The data used in this study were furnished by a large enterprise software vendor. This vendor sells very large software packages to corporate clients; single sales of $1 million or more are by no means uncommon. The sales cycle is very long, with most sales taking 12-24 months to complete. Although

base salaries are low, salespeople are for the most part relatively highly compensated, with average total annual compensation of around $150,000. These facts, as well as most other facets of the company's products, sales model and sales force management techniques, are fairly representative of the industry as a whole. A more detailed summary of the company, industry and sales model can be found in Larkin (2007).

At the end of each fiscal year, the company inducts the salespeople in the 10th percentile or better in terms of total sales that year into the next year's "Sales Club."[1] The announcement of the year's inductees is made a few weeks after the end of the fourth quarter. The "Sales Club" confers the following benefits to inductees:

1. A weekend trip to a tropical destination, such as Hawaii or the Bahamas, with senior sales executives and other "Club" members;
2. Company-wide recognition of the induction in the form of an email to the entire company from the CEO, and the placement of award posters at various places in the company's offices;
3. The insertion of a gold star and the formal name of the "Sales Club" on the salesperson's business card, and the ability to order customized stationery with the same.

It is notable that no direct financial award is given to "Sales Club" members. Unless the salesperson is named to the following year's "Sales Club," all benefits cease at the end of the year after the salesperson was in the 10th percentile[2].

Since there are several hundred salespeople in the organization and no reliable source of information as to others' total sales volume, throughout most of the year salespeople do not know with any degree of certainty where they stand on the sales distribution. They therefore do not typically know how likely they are to make the "Sales Club" in that year. The company does provide one piece of

[1]For confidentiality, we do not give the actual name of this company's "Sales Club." The names given to "Sales Clubs" vary considerably. Some common ones are "Circle of Excellence," "President's Club," and "Star Team."
[2] At the vendor in question former "Sales Club" members are required to turn in all remaining business cards with gold stars at the end of the year.

information to salespeople as the fiscal year is drawing to a close: at the end of the vendor's third quarter, the company emails all salespeople the current cutoff required to be in the top 10% of sales as of that date. While a salesperson's relative standing can and often does change dramatically due to sales made in the fourth quarter, the announcement of the current cutoff is much anticipated by salespeople, since it is the only time they know with certainty how close they are to the current year's cutoff.

Since the sales cycle for enterprise software is typically a year or more, a salesperson who feels she has a chance to make the "Sales Club" after the third quarter cutoff announcement usually has deals currently in the sales pipeline that she could work hard to bring to fruition before the year ends, in order to maximize the probability she will be inducted in the "Sales Club." Salespeople have some discretion over price[3], but all else held equal (most notably the probability of closing the deal) cutting price on a potential deal to incentivize an early purchase hurts the salesperson's pay, since commission is calculated on net sales, not using list prices.

However, the design of the company's sale compensation plan also crucially affects a salesperson's decision about when to close a deal, and whether to "rush" deals at the end of the year in order to maximize the probability of "Sales Club" induction. Like most enterprise software vendors (and many business-to-business sales organizations), the company in question uses a system of "accelerators" which make the commission schedule convex. The more sales volume a salesperson generates in a quarter, the greater her commission on the sale, because the multiplier on the commission calculator "accelerates." A representative example of an "accelerator" system is shown in Table 1, and graphically in Figure 1. As noted, a salesperson without sales will only make a 2% commission – the base rate – on a $250,000 sale done by itself in a quarter. If that same sale is made in a quarter where a salesperson has more than $6 million in other quarterly sales, that salesperson makes a commission of 24%, since the sale occurs on the 12x "accelerator."

[3] Any salesperson can, for example, give an immediate 20% discount on any deal without requiring management approval. For a full description of the price delegation system, see Larkin (2007).

The convex incentive scheme used in enterprise software, which is similar to non-linear schemes used throughout large-scale business-to-business sales environments (Larkin, 2007), creates an incentive conflict for a small set of salespeople at the end of each fiscal year. Specifically, a salesperson who feels she is on the border of making the "Sales Club," and who values her induction into the "Club," will be incentivized to do as many deals as possible before the end of the year in order to maximize her chances of the award. However, a salesperson who expects to have a large volume of sales in the first quarter of the following year – at least compared to her expected sales in quarter four – is incentivized to delay any sales to take advantage of the accelerating nature of the commission schedule. Such salespeople face a choice: do the deal now and increase the probability of winning the award, or delay it, and increase their expected take-home commissions[4].

The specific dilemma we have in mind is the following. A salesperson has a large, immovable order that will close early in the following year. She knows from her discussions with the customer over the preceding 12-24 months that the customer's IT budgeting cycles require that it purchase in the first quarter of the next year. She also has some smaller sales that she could probably close any time in the next 3-6 months; of course, to maximize commissions, she wants to bunch these sales with the large, immovable one that will close in the first quarter of the next year. However, at the end of the third quarter, she receives a signal via the announced cutoff number that she has a strong chance of making the "Sales Club" if she can close incremental business in the fourth quarter. Due to the large anticipated deal early in the following year, the salesperson faces a dilemma: does she reserve incremental business until the next quarter to maximize her compensation, or does she bring forward sales where she can, giving up commission dollars while increasing her probability of induction?

Of course, a salesperson would ideally like to pull forward all future sales into the fourth quarter; doing so maximizes the probability of induction into the "Sales Club" and also takes advantage of the accelerators in the commission schedule to maximize compensation. Salespeople, however, cannot affect

[4] Several factors come into play into this "expected value" calculation, including the probability that a salesperson will lose a deal if she tries to delay it to the next year, and the certainty with which a salesperson expects to have a large quarter in the first quarter of the next year. These factors are discussed in the empirical section of the paper.

the timing of all deals, and a significant portion of deals happen on a relatively fixed timeframe. Larkin (2007) shows that salespeople are adept at moving some deals to coincide with large deals which appear to be harder to move.

## *3. Hypotheses*

To model why an employee would make a decision to forgo current monetary rewards in order to win an award, we must first understand the benefits that accrue to winning an award. Economists, sociologists and social psychologists have identified four broad classes of benefits that accrue to award winners within employment relationships.

First, awards often act as a signal of an employee's value, and can therefore have important, positive consequences on an award winner's future employment trajectory (Spence, 1973; Rege, 2008). If this were the only benefit of an award, the amount an employee would be willing to pay for the award would represent the net present value of those future benefit streams, adjusted for the employee's risk tolerance (Neckermann and Frey, 2008). However, awards in an employment setting have several other demonstrated benefits. They may increase an employee's self satisfaction on the job (Jeffrey and Saffer, 2007). They may also bring positive recognition from peers, which employees may value over and above the monetary value of the award and their individual self satisfaction from winning the award (Huberman et al, 2004). Finally, awards typically are awarded through a competitive process, and some employees may find the process of competition enjoyable, particularly if they win (Croson and Gneezy, 2005)[5].

The first benefit described above – what economists would term the "rational" explanation for an employee paying for an award – is an important one to consider in the analysis; however, a wealth of research demonstrates that it is an incomplete measure of the value of an award in employment settings. Huberman et al (2004), for example, show that experimental subjects willingly leave "money on the

[5] We do not consider whether or how an award – an extrinsic motivator – interacts with an employee's intrinsic motivation for the job at hand. See Deci et al (1999) for a review of the intrinsic motivation literature, particularly with respect to how intrinsic and extrinsic motivation interact in unpredictable ways. Some scholars argue that awards "crowd out" intrinsic motivation less than monetary payments do, although this has not been shown in a large-sample study. While this is a fascinating topic, it is not one we are able to examine with the data at hand.

table" in order to gain short-lived prestige, even among subjects they will never see again. Frank (1985) and others have persuasively argued that employees with high amounts of prestige in organizations accept lower pay than they would otherwise because they in effect "pay" for the prestige given to them by colleagues.

We therefore hypothesize that an employee's willingness to pay for an award is higher than the monetary value of tangible benefits accruing to winners:

> **H1: Employees are willing to forego a greater amount of pay in order to win an award than reflected by the discounted expected value of the benefits accruing to award winners**

It would be worthwhile to further decompose the non-monetary value employees place on the award. Because it is difficult to measure self satisfaction or intrinsic job motivation given the data at hand, we focus on the value of the peer recognition and competition benefits accruing to award winners. Employees have been shown to value peer recognition, and to make decisions that are influenced by it. Mas and Moretti (2009), for example, show that grocery checkout operators work more quickly when they are being watched by a highly productive peer operator. Since working hard is arguably more costly than working slowly, these checkout operators are in effect "paying" for peer recognition. These findings are corroborated by a long stream of experimental literature that shows that the presence of an award improves subject performance on tasks (Magnus, 1981; Neckermann and Kosfeld, 2008)[6].

Why would an employee care whether a peer knows she won an award? One natural explanation is that the peer recognition surrounding an award may be particularly valuable to newer employees, employees who are not in majority groups at the organization, or other employees who lack status. Even absent monetary rewards, status is an important motivator for many employees, and has been demonstrated to be correlated with job satisfaction, and negatively correlated with complaints and

[6] In contrast, recent field experimental work suggests that feedback about relative performance can have a significant detrimental impact on performance (Barankay, 2010). However, this performance is not constant across the performance distribution. Awards usually are given only to high performers, and they usually do not involve performance feedback to all employees; therefore these results may not be contradictory.

administrative actions filed against co-workers (Magnus, 1981; Rege, 2008). This leads to our second hypothesis:

> **H2a: Employees who lack status in an organization are willing to pay more for the peer recognition stemming from an award**

A competing explanation would hold that employees who are already high-status, who are part of the majority group at an organization, or who have been at the organization longer are more likely to value peer recognition. Competition underlies this predicted effect. In experiments, subjects of higher status (induced via experimental manipulation) have been demonstrated to "compete harder" against peers compared to employees of lower status, even if it means giving up potential mutual gains (Garcia et al, 2006). Similarly, there is a long history of research in sociology demonstrating that people with significant resources often compete with others to "keep up with the Joneses," while groups without existing resources are less influenced by competition with peers (for a review of this literature see Rege, 2008). The value of peer recognition in the case stems from knowing one is better than a long-standing, similar group of peers, as opposed to helping establish status for someone new to the organization or facing dissimilar peers:

> **H2b: Employees who already have status in an organization are willing to pay more for the peer recognition stemming from an award**

One natural extension of hypothesis 2b relates to gender. Even apart from the fact that males have higher status and are the majority gender in many businesses, a number of experimental studies have demonstrated that men appear to enjoy competing more than women, who are more likely to "shy away" from competition (Nierdele and Vesturlund, 2007; Croson and Gneezy, 2005). These scholars attribute some of the "glass ceiling" on female advancement in business organizations to the strongly competitive bent of many males in these experimental and small sample studies. This leads to our final hypothesis:

> **H2c: Male employees are willing to pay more for the peer recognition stemming from an award than female employees of a similar existing status or recognition**

## *4. Data and estimation*

The data cover 4,412 separate sales made by many hundred salespeople[7] employed by the company from 1998-2002. Our data capture all deals over $50,000 in size sold by the direct sales team of the company in the U.S. and Canada. Table 2 contains some key summary statistics for the deals and salespeople in the dataset. The average deal is nearly $700,000 in size after it has been discounted, and the salesperson receives a commission of approximately $35,000 for an average deal. The average salesperson has been with the company for slightly more than three years, and about 9% of deals are sold by female salespeople.

Our identification strategy has four major parts:

1. Demonstrating the extent to which salespeople "at risk" of making the "Sales Club" make decisions regarding the timing of deals late in the year that are different from salespeople not "at risk" of making the sales club. Put another way, we first statistically identify whether the presence of the award affects the way salespeople time and price deals.
2. Calculating the extent to which future career benefits accrue to "Sales Club" inductees in the form of greater future sales, greater future commissions, greater probability of promotion or greater future job mobility. If a salesperson obtains later career benefits from admission to the "Sales Club," it would be natural that she might "pay" to enter it.
3. Building a valid measure of a salesperson's "willingness-to-pay" for induction into the "Sales club." As discussed below, we use techniques from the marketing and transport economics literatures on revealed preference to build these estimates. The approach looks explicitly at decisions around deal timing for salespeople who are close to the 10$^{th}$ percentile cutoff for entering the "Sales Club," and who face an explicit tradeoff between completing a deal early and increasing the chance she will be inducted in the sales club, and completing a deal late and earning a bigger commission check.
4. Ensuring the measurement technique is robust to alternative explanations. This is important because our data are not experimental, so we cannot control for all relevant

[7] To protect its confidentiality, the vendor asked that I not report the exact number of salespeople in the dataset.

factors. There may be unobserved factors which influence a salesperson's decision to complete a sale "early" or "late." However, it is difficult to think of any factors which are specific to the 10th percentile performance cutoff for making the "Sales Club," which is the major identification strategy we use. Therefore, for robustness we carry out the same "willingness-to-pay" analysis not only for salespeople very close to the cutoff for the "Sales Club," but also for salespeople very close to placebo performance percentiles not associated with the award, such as the 50th percentile. We would not expect these placebo tests to result in significant estimates of willingness-to-pay to enter into a meaningless performance percentile. If we find significant estimates, it would mean there was likely an unobserved factor affecting all salespeople that are not accounted for in the model.

*4.1 Does the "Sales Club" cause salespeople to make different timing decisions?*

We first examine whether being close to induction in the "Sales Club" causes salespeople to make different deal timing and pricing decisions than salespeople who are not close to induction. Since deal timing and pricing decisions directly affect the commissions salespeople earn, finding evidence that salespeople close to induction make deal timing and pricing decisions differently would suggest that pursuit of the "Sales Club" does carry monetary consequences for salespeople.

The convex nature of the commission system gives all salespeople the incentive to "bunch" deals within quarters. To determine whether the "Sales Club" changes this incentive, we examine the decisions of salespeople close to making the "Sales Club" and compare them to decisions of other salespeople in similar circumstances, except the proximity to the "Sales Club."

The first step in this analysis is to identify salespeople who believe they are close to the cutoff for making the "Sales Club," so that we can compare their decisions to salespeople who are not close to the cutoff. Luckily, the software vendor each year gave all salespeople crucial information about their likelihood of making the "Sales Club." At the end of the third quarter of every fiscal year, salespeople

were informed of the current cutoff needed to be in the top 10% of salespeople in terms of sales, and they also knew their own year-to-date sales. At no other point was information around others' total sales communicated to salespeople, and since hundreds of salespeople were employed at the organization during the time span of the data, it is realistic to assume that the company's announcement at the end of quarter three was the only time most salespeople had a good idea of their chances of making the "Sales Club[8]." We therefore focus on salespeople who are relatively close to the announced quarter three cutoff.

Table 3 shows the sales volume representing the 10th percentile cutoff announced to all salespeople at the end of quarter 3 for the six years in the dataset, as well as the number of salespeople within the indicated distance to this cutoff. For example, in 1997 the salesperson at the 10th percentile of total sales at the end of quarter three had made $3.62 million in sales. Sixteen salespeople were within 5% of this number – $3.44 to $3.80 million in sales – while 51 were within 20% of the $3.62 million cutoff. We define these salespeople as "at risk" of making the "Sales Club."

Many of these salespeople, however, did not face a tradeoff between their short-term economic incentives and their incentive to make the "Sales Club." This is because many of them ended up with more sales in the last quarter of the year than the first quarter of the subsequent year, meaning they would earn more commissions by closing deals in the fourth quarter of the year in question. Because these salespeople's dual incentives – to make commissions and to increase the likelihood that they make the "Sales Club" – both gave the salesperson the incentive to book sales in the fourth quarter rather than push them to the next year, we cannot disentangle the effects of the two.

However, a number of other salespeople *did* face the tradeoff between closing sales in the fourth quarter and increasing their probability of making the "Sales Club," and closing them in the first quarter of the proceeding year thereby increasing their commissions. Specifically, any "at risk" salesperson that expected to make a very large sale in the first quarter of the proceeding year, and having some smaller, incremental deals over which she has some control over timing, found herself with competing incentives:

[8] Salespeople may and probably often do remember the third quarter cutoff announced in previous years; however, as noted in Table 3, this cutoff can vary considerably from year to year, so it provides only limited information.

make the incremental sales in quarter four of the year in question, and increase the likelihood of making the "Sales Club;" or make the sale in the first quarter of the subsequent year, and make a higher commission on the sale. Table 4 indicates the number of "at risk" salespeople facing this dilemma in each year who are within the indicated distance from the sales cutoff announced at the end of the third quarter of the year in question. For example, six salespeople in 1997 are both within 5% of the $3.62 million cutoff to be in the top 10% of sales as of the end of quarter three, and reach a higher commission accelerator in the first quarter of the next year than they do in the fourth quarter of the year in question[9].

To further illustrate this concept, we present an example of a salesperson facing this tradeoff who agreed to be interviewed for this study. This salesperson, a ten year veteran at the vendor, had over $5 million in yearly sales as of the third quarter of 1999, putting him nearly 15% higher than the $4.41 million announced by the company as representing the cutoff as of the end of the third quarter. This salesperson also made a $1.2 million sale in the first quarter of 2000, which put any other sales he made in that quarter on the 6x (or 12%) accelerator. This salesperson indicated that the $1.2 million sale was "fixed," since the customer's IT budget did not allow it to buy sooner, and that he knew the sale was highly likely to occur in the first quarter of 2000. The salesperson also had a smaller sale in the works, on the order of several hundred thousand dollars, and felt he could close it either in the fourth quarter of 1999, when he did not make any other sales and therefore would earn only the base 2% commission rate should he close the $200,000 deal in that quarter, or the first quarter of 2000, when the sale would occur at a commission rate that was six times greater than the base rate. "I knew waiting until FY2000 would give me a commission check that would be about $20K more than doing the sale right away," this salesperson reported in an email. "But I also knew that $5 million in sales in 1999 might not be quite enough to make the ["Sales Club"]. I was really shocked when [the company] announced the $4.4 million cutoff as of Q3. The year before it hadn't even been $4 million. So I had a big decision to make – make the sale right away and help my chances of making the ["Sales Club"], or delay it and get that

[9]We are making the crucial assumption that the salesperson knows she is very likely to close the large, fixed deal in Quarter 1 of the subsequent year. Because the sales cycle is 12-24 months, this assumption seems plausible. See Larkin (2007) for further evidence about the "fixed" nature of some larger deals.

bigger check." The salesperson made the sale on the last day of the company's 1999 Fiscal Year, and it therefore counted towards his total sales number for the 1999 "Sales Club" contest. Had he made the sale the next day, he would have made over $20,000 more in commissions on the same sale.

We term this group of salespeople as the "choice" group; not only are they "at risk" of making the "Sales Club," but they also appear to face a dilemma about when to close a deal given their competing incentives for commissions and to enter the "Sales Club." Specifically, the salespeople identified in Table 4 all share three characteristics: they were close to the announced cutoff for the 10$^{th}$ percentile as of the end of quarter three of the year in question; they ended the first quarter of the subsequent year on a higher commission accelerator than they ended the fourth quarter of the year in question; and they were observed to close at least one other, smaller deal either in the fourth quarter of their "at risk" year or the first quarter of the subsequent year[10].

We next examine whether salespeople in the "Choice" group make decisions around deal timing that are different than other salespeople that share the same characteristics of the "Choice" group, except the proximity to "Sales Club" induction. Specifically, we build two placebo groups of salespeople facing similar choices but who are not making decisions under the shadow of possible "Sales Club" induction. The first group is salespeople who face the same Q4/Q1 incentive tradeoff but who are not close to making the "Sales Club." As with the "Choice" group, these salespeople end the first quarter of a year on a higher commission accelerator than they did the fourth quarter of the preceding year, and that made one other smaller deal either in the four quarter of year *t-1* or the first quarter of year *t*; however, these salespeople are not close to the cutoff for the "Sales Club." We term this the "Quarter Four" group, since, as wit the "Choice" group, salespeople in this group are only making decisions about deals closing in the fourth quarter of a year or the first quarter of the subsequent year. As noted in Table 5, there are more "Quarter Four" salespeople each year than there are "Choice" salespeople.

[10] In fact, if the salesperson did not have one smaller deal either in the fourth quarter of the "at risk" year or the first quarter in the subsequent year, she would have by definition been on the same accelerator for both quarters. This is because she only closed one deal in those two quarters. These salespeople therefore would not enter into the "Choice" sample in the first place. Therefore the second and third criteria listed above are redundant; we list both for clarity.

The second placebo group looks at decisions of the "Choice Salespeople" in years where they are not at risk of making the "Sales Club." For this group, we do not limit to Q4/Q1 situations, but include any circumstance where the salesperson closes a big deal in quarter *q+1* and at least one smaller deal in quarter *q+1* or quarter *q*. We term this the "Choice Not at Risk" group. The number of salespeople in this group in each year is noted in Table 5. The logic behind these two placebo groups should be clear. The "Quarter Four" group compares the decisions of salespeople made at the same time as those of the "Choice" group but not under influence of the "Sales Club." The "Choice Not at Risk" group compares decisions of the same salespeople as the "Choice" group, but in years when they are not "at risk" of making the Sales Club.

We next build a statistical model of the extent to which salesperson compensation concerns drive the timing behavior of the salespeople in each group. We first build a measure of the size of the salesperson's compensation concerns around the timing of each of the smaller deals for the salespeople in each group[11]. Following Larkin (2007), we call this variable ΔMB, as it measures the marginal commission benefit to the salesperson of closing the smaller deal at the same time as the larger deal. As noted in Table 6, the mean and distribution of ΔMB is similar across the three groups.

We use a logit model to estimate whether the salesperson chooses to close the observed deal "with" the large, assumed fixed deal, or "against" this large deal, meaning the observed deal closes a quarter before. Specifically, we model:

$$\Pr(C_i = J) = f(\Delta MB, \Omega_i, \varepsilon_i) \qquad (1)$$

$$J \in \{t, t\text{-}1\}$$

where C represents the observed timing of the deal within the financial quarter, the subscript *i* refers to the deal in question; the subscript *j* refers to the timing of a deal within a quarter; t refers to the quarter of the large, assumed fixed deal; ΔMB represents to the change in marginal salary benefit if the deal closes in quarter t as opposed to quarter t-1; Ω represents a vector of controls; and ε represents the error term.

[11]Again, we are assuming that the timing of the large deal is fixed.

Table 7 reports the marginal effects of the logit regression reported at the sample mean for each group. With all three groups, there is a strong negative correlation between salesperson compensation concerns and the likelihood that the deal in question will be closed in the quarter before the larger deal. However, this correlation is significantly smaller for the "Choice" group than the other two groups. For the choice group, a $10,000 difference in commission leads to a 13% lower likelihood that the deal closes the quarter before the large, fixed purchase. The corresponding estimate for the other two groups is over 30%. This difference is statistically significant at the 1% level. Therefore, salespeople in the "Choice" group *do* appear to be swayed by monetary incentives when deciding whether to close deals in Quarter 4 or the first quarter of the following year. But they appear to be much less swayed by these incentives compared to salespeople in similar situations who are not making decisions in the shadow of "Sales Club" induction. As shown by the results of the "Choice Not at Risk" group, this difference extends to decisions made by the exact same salespeople as the "Choice" group when the "Sales Club" is not at play. Simply put, salesperson decision making appears to be affected significantly by "Sales Club" proximity. There is considerable *prima facie* evidence that salespeople are willing to forego some level of immediate commissions in order to increase their probability of making the "Sales Club."

*4.2 Does admittance to the "Sales Club" predict future career success?*

One obvious reason that salespeople would be willing to give up immediate commissions to enter the "Sales Club" is that induction into the "Sales Club" may carry longer-term financial benefits. Salespeople would obviously "pay" to enter the "Sales Club" if it brought career benefits that were likely to positively influence their future salaries or career paths. The most obvious example of a benefit that could come about due to the award is future sales. Induction into the "Sales Club" might make a salesperson more effective at selling, either because customers are influenced to purchase because of the award, or because the vendor acts in a preferential way to award-winning salespeople, such as affording her preferential treatment when it sets sales territories, makes decisions about approving deals, assigns

technical sales support, and so on[12]. Additionally, "Sales Club" induction could help a salesperson get promoted in the sales organization[13], or help with future job mobility.

To test whether the career of "Sales Club" inductees perform better than non-inductees in their future careers, we use a discontinuity approach that examines whether salespeople who just made the cutoff for induction have career future outcomes that are statistically different than salespeople who fall just below the cutoff. This technique is desirable because it arguably corrects for obvious skill differences between salespeople with different observed performance. While there is probably strong reason to believe that salespeople in the 9$^{th}$ percentile of performance are much more skillful than those of, say, the 30$^{th}$ percentile, there is little reason to think that salespeople in the 9$^{th}$ percentile are significantly more skilled than salespeople in the 11$^{th}$ percentile. We therefore make a series of statistical comparisons between the post-award career trajectories of salespeople in the 7$^{th}$ to 10$^{th}$ percentiles of performance ("award winners") with salespeople that do not make into the "Sales Club," but are within 10% of doing so in a given year ("non-winners")[14].

Specifically, we collected data on four separate variables measuring future career success:

1. Future average quarterly sales
2. Future average quarterly commissions
3. Probability of promotion to sales manager at the vendor
4. Probability of voluntarily leaving the vendor[15]

For the period outside the sample, the vendor provided information on each of the above variables as of July, 2010. For salespeople who stayed at the vendor, we therefore have at least 36 quarters of sales,

[12] The vendor explicitly states in its rules for the "Sales Club" that it gives no preferential treatment to inductees, but this assertion is worthy of statistical examination.

[13] It is widely viewed that the best salespeople do not want to be promoted, because a sales manager's pay depends on her team's success instead of her own. Again, though, this assertion can be statistically investigated.

[14] In a separate specification, we compared "award winners" to salespeople in the 10.1$^{st}$ to 12$^{th}$ percentiles of performance each year. The results are very similar to those reported. The benefit of including any salesperson within 10% of the sales needed to enter the "Sales Club" is it generates more observations, resulting in more precise estimates.

[15] Unfortunately we do not have data on the subsequent jobs taken by departing salespeople. We focus on voluntary departures because they are more likely to represent positive outcomes for departing salespeople. While we could also focus on length of tenure at the vendor, we feel that actual sales and commissions generated while working at the vendor are better measures of success than simple employment.

commission and promotion data. We also have a very long window under which we measured voluntary departures.

The results of these comparisons are presented in Tables 8 and 9. Table 8 presents the data for only the three years following the salesperson's last award, while Table 9 presents the data for all years following the award until July, 2010. Note these analyses drop salespeople who win the award in one year and are "non-winners" in another year, although the results are robust to including these salespeople. The third column of both tables reports the test statistic for a t-test of means[16]. As shown in the tables, there is no statistically significant difference between the four career outcome variables measured, either in the three years after winning the award, or in the entire span of the data. If anything, "non-winners" – salespeople who were very close to making the "Sales Club" at least one year but who never do make it – have slightly higher future sales and commissions. It certainly does not appear that there are career benefits accruing to salespeople who make the "Sales Club."

Therefore, not only is hypothesis 1 – that an employee will value the award above and beyond the net discounted value of the award itself – supported by the analysis, but it appears that the $27,000 valuation is *completely* composed of non-monetary benefits. The value of peer recognition, and the competition engendered by the "Sales Club," is apparently quite worthwhile to the average salesperson. While it could be argued that salespeople believe their future careers will benefit more than is demonstrated by the data, it is hard to imagine that salespeople are so far off when thinking about the monetary value of the award that they give up significant commissions expecting future monetary rewards, only for none to arrive. We also show later that salespeople of higher tenure, who arguably are more aware of the lack of monetary returns to the reward, give up *more* commissions to earn the award, which also suggests that this result does not stem from a lack of information about the financial benefits of "Sales Club" induction.

[16] The results are robust to regression analysis controlling for observable factors, such as salesperson tenure and previous salesperson performance, rather than a simple test of means. For brevity we do not report the regression results here.

*4.3 How much are salespeople willing to pay to enter the "Sales Club?"*

We next build a statistical model of a salesperson's willingness to pay to enter the sales club. Of course, we cannot observe this number directly, since salespeople are not asked to "buy" admittance, and are only sometimes faced with the discreet choice between a certain monetary award and an increased probability of "Sales Club" admittance. However, we do observe a series of these discreet decisions made by salespeople about whether to close the deal at a time that will maximize commissions, or to close the deal at a time that will maximize the probability of making the "Sales Club;" we also observe the exact commission amount in question. Borrowing from the marketing and transport economics literatures, we can then used these "revealed preferences" to statistically model the average salesperson's willingness to pay (WTP) for the award.

The most common technique in the WTP literature with revealed preference involves using observed choices to estimate a demand curve for the product attribute in question, and calculating the area under the demand curve (Train, 2009; Boardman et al, 2005). In our case, the demand curve approach to WTP is not appropriate. In our context, supply of the good (the award) is fixed, and each consumer is limited to at most one unit of it. Furthermore, the average consumer does not pay at all for the good – she receives it without having to trade off commissions[17]. We therefore use a different, somewhat less common statistical technique which focuses on the average "at risk" salesperson's "indifference point" between commissions and the award (Train, 2009). Using a number of statistical methods, we estimate the dollar amount at which the average salesperson has a 50% probability of choosing the higher commissions, and a 50% probability of choosing the "Sales Club." This indifference point provides a measure of the average salesperson's willingness to pay for the award.

We therefore restrict our analysis to the "Choice" group of salespeople, as defined earlier and represented in Table 4. To reiterate, the "Choice" group represents salespeople who are within a specified cutoff range of the announced $10^{th}$ percentile sales at the end of quarter 3 of each year, who are observed

[17] More precisely, for most salespeople earning commissions and earning admittance to the "Sales Club" are complementary activities, not substitutable ones. The average salesperson is therefore "paid" to enter the "Sales Club."

to complete a large deal in the first quarter of the subsequent year, and who complete at least one smaller deal either in tandem with that large deal, or in the fourth quarter of the year they are "at risk" of making the sales club. We specifically focus on the timing and incentive impact of the smaller deals.

For each salesperson in the "Choice" group, we define a series of variables that are critical to the willingness-to-pay analysis. We first look at when the salesperson chose to close the smaller deal. If she closed the smaller deal (or deals) in the fourth quarter of the "at risk" year, we term the salesperson as "*choosing the award."* If the salesperson closes the deal (or deals) in the first quarter in the year following the "at risk" award, we term the salesperson as "*choosing commissions*." These dummy variables take a value of zero or one for each salesperson-year observation in the "Choice" set, and in each case they sum to one. Finally, we also calculate the total amount of "*commissions at risk*," which is the absolute value of the difference between the commission the salesperson actually earned and the hypothetical commission the salesperson would have earned had the smaller deal closed in the other quarter[18]. To be clear, there are two choices in play, depending on whether the salesperson "*chose the award*" or "*chose commissions*":

1. If the salesperson "*chose the award*," she closed the deal (or deals) in question in the fourth quarter of her "at risk" year, and not in the first quarter of the following year when her commission would have been calculated at a higher accelerator. In this case, the "*commissions at risk*" are the difference between the hypothetical amount the salesperson would have made if the deal (or deals) had been in the first quarter of the next year, and what she actually earned.
2. If the salesperson "*chose commissions*," she closed the deal (or deals) in question in the first quarter of the year after she is "at risk" for making the "Sales Club." In this case, the "*commissions at risk*" are the difference between the commissions she earned on the deal and the hypothetical amount of commissions she would have made had she closed the deal in quarter four of the year she was "at risk."

[18] Conceptually this is the same calculation as the ΔMB calculation from section 4.1.

When making these calculations, we do not include the largest deal in quarter one in the year after the salesperson is "at risk." This is because our empirical approach assumes that at least one deal is "fixed," which is exactly why the salesperson has the incentive conflict in the first place. We only include sales that are smaller than the largest sale the salesperson makes in quarter one[19]. If the salesperson makes more than one such sale, the aggregate effects of both sales are taken into account[20]. We do, of course, take into account the incentive effects of the single large deal, specifically how it affects the commission rate of the smaller deal(s) should it close in the same quarter. For the reasons above, however, we do not model the choice of timing of these deals.

Table 10 shows sample averages for the three variables defined above – "commission at risk," "chose the award," and "chose commissions" – for each cutoff listed in Table 4[21]. We also list several variables calculated separately for salespeople "choosing the award" and "choosing commissions": the percentage of both categories that end up making the "Sales Club" in the "at risk" year, and the sample average of the "commission at risk" for each group. It is apparent from Table 10 that there is a strong correlation between the "commission at risk" for each category and the likelihood that salespeople "chose the commissions." For example, for the 202 salespeople within 20% of the third quarter cutoff, the 47% of salespeople who are observed to "chose the award" forego an average of $18,116 in commissions by completing their deals in the fourth quarter. The 53% of salespeople who "chose commissions" would have foregone $41,074 in commissions had they closed their deals in the fourth quarter of their "at risk" year rather than the first quarter of the subsequent year. Also, the decision to "choose the award" is highly correlated with admittance to that year's "Sales Club": 75% of salespeople who are within 20% of the quarter three cutoff, and who close their "choice" deals in the quarter that increases their probability to

[19] If we include the largest sale of Q1 when calculating the "commission at risk," our estimate of a salesperson's willingness-to-pay for the award is about 50% larger and much more statistically significant. However, as noted, including these sales would not be appropriate given the logic of the empirical design.
[20] Interestingly, not a single salesperson with multiple smaller deals "chose the award" for one deal and "chose commissions" for the other deal.
[21] In this table, the six years of data are collapsed into a single column.

make the "Sales Club," actually end up making the Club. Conversely, only 13% of salespeople who "chose commissions" on such deals end up making the Club.

Table 10 provides initial evidence that many salespeople forego sales commissions in order to increase their probability of making the "Sales Club." There is also a clear correlation between the choice of some salespeople to forego the opportunity to increase their "Sales Club" admittance probability if the potential foregone commission is too high.

With these variables in hand, we next estimate the average salesperson's "indifference point" between the award and the larger commissions. Specifically, we build a statistical model that assumes that each salesperson makes an explicit choice between the award and the increased commissions, given the amount of commissions at risk. For simplicity, we assume that the salesperson believes she will definitely win the award should she choose to forego the commission, and will definitely lose the award if she chooses to accept the commission[22].

We use Ordinary Least Squares (OLS) estimation as a starting point for estimating a salesperson's willingness to pay for induction into the "Sales Club." OLS is attractive (and widely used) in these circumstances because the ease and simplicity inherent in building a point estimate at which the average salesperson has a 50% probability of choosing the award. Specifically, we model:

$$\{C_i = 1 \text{ if Award, else } 0\} = \beta_1 + \beta_2 CAR_{i,} + \beta_3 S_{i,} + \beta_4 C_i + \beta_5 P_{i,} + \varepsilon_i \qquad (2)$$

Where $C_i$ is an indicator variable indicating whether salesperson to close the deal in question in the fourth quarter of the "at risk" year ("choosing the award"), as opposed to closing the deal in question in the first quarter of the subsequent year ("choosing the commission"); $CAR_i$ refers to the "commission at risk" on the deal in question; $S_i$ refers to salesperson-specific varuabkes; $C_i$ refers to customer-specific controls; $P_i$ refers to product-specific controls; $\varepsilon_i$ and is the error term.

[22] As before, this modeling assumption is biased against finding an effect, given the probabilities indicated in Table 10. Since salespeople "choosing the award" don't win the award with a 20-25% probability, while those choosing the commissions win the award with only a 3-13% probability, a model that takes these probabilities into account would lead to a higher estimate on the salesperson's willingness to pay for the award. For robustness, we ran a model that corrected for the implied probability of winning the award, and the estimated effects were larger and more significant than those reported.

The coefficient on the "commission at risk" variable will allow us to calculate how much the average salesperson values the award. Additionally, we examine salesperson characteristics because of our second set of hypotheses, which are designed to measure whether salespeople appear to value the award in order to establish status in the organization, or because they enjoy competition. Specifically, we control for a salesperson's tenure at the vendor, her tenure with her manager, and her gender. If the effects of the first two variables are negative, it would suggest that earlier-tenure salespeople are more likely to choose the award, and would therefore support the hypothesis that the award helps establish status or reputation. Since females are a very small minority of salespeople, a positive coefficient on the female dummy would suggest the same thing. Conversely, a positive relationship between choosing the award and tenure or the length of relationship with manager, or a negative relationship between choosing the award and being female, would suggest that salespeople value the award for its competitive nature, and not to establish status.

We use customer industry fixed effects to control for situations where the vendor had a strategy or policy to push or delay deals to customers of a certain industry. In some specifications, we also controlled for a customer's size in terms of employees, revenues or market capitalization; the effects on these variables were never significant. We use product family fixed effects for similar reasons[23]. Finally, we include year fixed effects, since there may be macroeconomic reasons affecting a salesperson's valuation of the award in a given year. This is especially important given that we have both "Internet bubble" and "post-bubble" years in the dataset.

Table 11 shows the estimates from the OLS regression for four different samples: salespeople who are 5%, 10%, 15% and 20%, respectively, from the 10$^{th}$ percentile cutoff announced at the end of the third quarter. The results are quite similar across specifications. For every $1,000 in "commission at risk," the probability that a salesperson will "choose the award" decreases by about 0.5% to 1%. This effect is significant at the 5% level except for the +/- 5% model, which only has 56 observations.

[23] The vendor has literally thousands of products, since very similar products can be differentiated by operating system, computing power, specific features, and many other factors. "Product family" refers to products meeting the same underlying customer need and sharing the same basic underlying code.

Although not as strong an effect as the "commissions at risk," higher-tenure salespeople are more likely to "choose the award" – an additional year of tenure increases the probability of taking the award by about 1%. Gender has a large, negative effect on the probability of "choosing the award": in all specifications, women are 30-40% more likely than men to "choose commissions" over the award.

We repeat the regression analysis using two other statistical specifications: the logit and the mixed logit. These discrete choice techniques do not generate predicted values which are out of sample, and in the case of the mixed logit, allow for random variation in taste across consumers (Train, 2009). The downside to these techniques is it can be problematic to generate accurate predictions far from the sample averages, since effects are non-linear. Since our technique in calculating WTP relies on estimating the commission level at which the average salesperson is 50% likely to choose the commission and 50% likely to choose the award, if the prediction of the probability at the sample averages is far from 50%, the resulting estimate may not be accurate.

Table 12 reports the marginal effects of the logit estimation, using a similar estimating equation to equation (2) above:

$$PR\ (C_i = Award) = f(\ CAR_i, S_i, C_i\ , P_i\ ,\ \varepsilon_i) \qquad (3)$$

As noted in Table 12, the results of the logit estimation were broadly similar to the OLS estimation; the marginal effect of "commission-at-risk" is about double that of OLS, and the marginal effect of a female salesperson is about half. Because these predictions are only meaningful around the sample means, while the OLS predictions attempt to fit a line that predicts across the entire sample, it is unsurprising that the effect sizes differ. Indeed it is likely that after a certain interval, a marginal change in commissions is not very important, since a salesperson is highly likely to choose the award or the commissions. For these reasons, the logit specification is usually preferable to using OLS (Train, 2009). (For brevity we do not report the results of the mixed logit specification, which were quite similar to the logit specification, although somewhat less precise due to the less restrictive functional form assumptions of the mixed logit.)

The most simple way to estimate WTP given our "indifference" approach is to use the estimated Ordinary Least Squares coefficients noted in Table 11 and sample averages of the variables used in the

regression, and back-solve so the predicted probability of choice is 50%. If one believes all the assumptions of the model, this approach yields a number at which the average member of the sample population is indifferent between the two choices, and calculating a standard error on this estimate is straightforward. This approach is very easy to calculate and often results in estimates that are quite similar to those of more complicated methods.

This "backsolving" method does not work in the case of the logit or mixed logit, because the effects are nonlinear. For these regression techniques, we use the fitted probability values of each observation to generate an estimate of the commission amount required to lead to a predicted probability of 50%, with the other variables held constant. We take the average of these individual point estimates, and then use the Delta Method to construct a standard error for this estimate.

We attempt all three methods, and results are reported in Table 13. Estimates for the average valuation of the award range from $27,000 to $37,000, although no estimate above $34,000 is statistically significant. The estimates are highly stable across estimation methods, and even for the mixed logit method, which is most conservative in the calculation of standard errors, estimates for the +/- 20% sample are significant at the 5.2% level. (Estimates for the +/- 15% sample are significant at the 11.6% level.) Again, it appears that slightly more observations would be beneficial, but the convergence of all methods to an estimate of around $30,000 for the largest sample is remarkable. Taken at face value, these results suggest that the average salesperson would pay approximately $30,000 to enter the "Sales Club."

Before turning to robustness checks of these results, it is worth further unpacking the highly significant gender differences noted in the regression results in Table 11. To do so, we calculate the value of the award to men and women using the same methods noted earlier for the OLS regressions. The results of this analysis are reported in Table 14. As noted in the table, men are willing to pay twice as much as women – roughly $36,000 for men and $15,000 for women. Given these results, and the results in Tables 11 and 12 noting that higher tenure salespeople are more likely to give a higher value to the award, hypothesis 2a is not supported. It does not appear that the award is a method for newer, non-established or minority group members to attain status. Rather, hypotheses 2b and 2c do find

considerable support – the value of the award appears to be related to a penchant for competition among the majority group (males) and people already established within the organization.

*4.4 Robustness checks*

It could be argued that these results occur simply because a salesperson does not attempt to move a deal to the first quarter if the commission change is not high enough. It may take more effort for her to do so than is worth it given the opportunity cost of her time, or it could risk losing the deal altogether. If these alternative explanations are valid, however, they should hold at any part of the performance distribution, not just for salespeople close to the 10th percentile cutoff. Put another way, the unobserved conditions applying to these relatively small deals should not hold only around the 10% cutoff.

To investigate this possibility, we build a sample of salespeople in the exact same conditions of those investigated above, but focus not on salespeople close to the 10th percentile of performance, but those close to the 20th, 30th, 50th and 75th percentiles. Specifically, for each performance level examined, we select salespeople who are within 20% of the sales of the salesperson just at the respective percentile level, and whose sales in quarter one of the subsequent year put the salesperson on a higher accelerator than she reached in the fourth quarter of the preceding year[24]. In short, we used the exact same methodology used to build the sample of salespeople "at risk" of entering the "Sales Club," but did so for performance levels that have no bearing on the award or anything else in the organization. We then re-run the same logit specification carried out on the "at risk" sample.

The results of these models are reported in Table 15. Interestingly, the coefficients on $CAR_{i,}$, the measure of the "commission at risk" if the deal occurs in the fourth quarter of the year in question rather than the first quarter of the subsequent year, are substantially larger than they are for the "at risk" salespeople. For example, a salesperson near the 50th percentile of performance at the end of quarter three

[24] We carried out this robustness check for salespeople at 5%, 10%, 15% and 20% of the salesperson at the respective percentile of performance at the end of the third quarter of each year. The results do not change. We also examined the results at the 40th, 60th, 70th, 80th, and 90th percentile. The results are very similar to those reported for the 20th, 30th, 50th and 75th percentiles.

is 33% more likely to make a sale in the first quarter of the following year rather than the fourth quarter of the year in question for every $10,000 in commission difference between the two potential closing dates. This is not surprising, given that salespeople obviously care about commissions, and have no reason to push for the deal to close in quarter four given that they close a large deal in the first quarter of the following year.

We next extend the same "willingness-to-pay" analysis for salespeople "at risk" of making it into the non-award percentile categories. This provides a further robustness check on the $30,000 valuation for performance at the 10$^{th}$ percentile or above. For brevity, we only report the results of the logit method of estimation, although the other two methods provide quite similar results. These results are reported in Table 16. For example, we estimate that a salesperson "at risk" of making the 20$^{th}$ percentile of performance at the end of the third quarter in a given year, and who will have a large deal in the first quarter of the following year, will pay $942 in order to increase his probability of making it into the 20$^{th}$ percentile of performance. This estimate is not close to significant in statistical terms. By construction the "willingness-to-pay" measures can only take positive values; if they were zero or negative, then the salesperson would not have been classified as having "commission at risk" and would therefore not be in the "Choice" sample in the first place. These results, then, clearly indicate that salespeople are not willing to pay to enter the 20$^{th}$, 30$^{th}$, 50$^{th}$ or 75$^{th}$ percentile of performance; given that the standard errors are between $654 and $1,954, we estimate relatively precise zeros. These results stand in stark contrast to the approximately $30,000 salespeople are willing to pay to enter the 10$^{th}$ percentile.

These placebo tests clearly suggest that the dynamics of the choice around when to close a deal dramatically change at the 10$^{th}$ percentile of performance, just as predicted given the discontinuity represented by the award. Given these results, it is very unlikely that mere coincidence or an alternative explanation not correlated with the award is causing the results around the 10$^{th}$ percentile mark. This lends much greater credence to the $30,000 award value reported in Table 13.

*5. Discussion and conclusion*

This research demonstrates that employees can put a significant value on peer recognition, even if it does not lead to better career success as measured by future pay, promotions or mobility. It also is consistent with the hypothesis that competition with peers is a significant driver of the desire for peer recognition.

Put in perspective, a salesperson paying $30,000 to enter the "Sales Club" is deciding to give up about 5% of her annual pay, since the total pay of salespeople at the 10$^{th}$ percentile averages about $500,000 in the dataset. The sociology literature has demonstrated that well-off consumers often make needless purchases of goods like expensive cars or exotic vacation trips simply to "keep up with the Joneses," so in that light the $30,000 figure may not be surprising.

It has not been previously demonstrated, however, that many employees are willing to pay so much in order to win in a competition of peers at work. The study's results suggest that sociological and social psychological findings on conspicuous consumption may carry over to workplace settings. While the competition induced by the "Sales Club" likely has positive benefits for firms in that it motivates effort, it may have the same downsides identified by recent work on conspicuous consumption: alienation, a breakdown of employee ties, antisocial behavior and even unethical or other disturbing behavior such as violence (Meyer et al, 2006). This worry is especially important given the homogeneity of the sales force of the vendor in question – over 90% of salespeople are men, and nearly 80% of them are Caucasian. Whether this homogeneity is in part caused by, or is simply correlated with the use of instruments like the "Sales Club" by the firm is an important area for future research.

It would also be fascinating to carry out a more comprehensive cost-benefit analysis of awards like the "Sales Club" from the firm's perspective. The widespread use of these kinds of awards suggest that many firms think they are valuable, but existing research, including this study, tend to look separately at the costs and benefits of these motivational tools rather than attempting to build a comprehensive theory of when they can provide net benefit to firms and employees, and the circumstances under which they should be avoided. Again, the heterogeneity in revealed valuation for the award raises a cautious

note about the benefits of the "healthy competition" these awards are said to engender; indeed, discussions with executives at the software vendor that provided the data for this research suggest they were unaware that women and new employees valued the contest so much less than men and existing employees. It is our hope that this research will help contribute to a more comprehensive theory on awards, peer recognition and competition.

**References**


Allenby, G. and P. Rossi (1999). "Marketing Models for Consumer Heterogeneity." *Journal of Econometrics*, 89: 57-78.

Barankay, I. (2010). "Rankings and Social Tournaments: Evidence from a Field Experiment." Working paper, Wharton.

Boardman, A., D. Greenberg, A. Vining and D. Weimer (2005). *Cost Benefit Analysis: Concepts and Practice*. Third edition. Prentice Hall.

Croson, Rachel and Uri Gneezy (2005). "Gender Differences in Preferences: A Review of Economics Experiments." Working paper.

Deci, Edward, Richard Koestner and Richard Ryan (1999). "A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation," *Psychological Bulletin*, 125 (6): 627-668.

Edelman, Benjamin and Ian Larkin (2010). "Envy and Deception in Academia: Evidence from Deliberate Self-Downloads of SSRN Working Papers," working paper, Harvard Business School.

English, James F. (2005). *The Economy of Prestige: Prizes, Awards, and the Circulation of Cultural Value*. Cambridge: Harvard University Press.

Festinger, Leon (1954). "A Theory of Social Comparison Processes," *Human Relations* 7: 117-140.

Frank, Robert H. (1985). *Choosing the Right Pond: Human Behavior and the Quest for Status*. Oxford: Oxford University Press.

Frey, Bruno S. (2007). Awards as Compensation. *European Management Review* 4: 6-14.

Garcia, Stephen, Avishalom Tor and Richard Gonzales (2006). "Ranks and Rivals: A Theory of Competition." *Personality and Social Psychology Bulletin,* 32 (7): 970-982.

Hars, Alexander and Shaosong Ou (2001). "Working for Free? Motivations of Participating in Open Source Projects," *Proceedings of the 34th Hawaii International Conference on System Sciences*, 3-9.

Heidi, Christen (1997). Dartnell's 29th Sales Force Compensation Survey: 1996-1997. Dartnell Corporation, U.S.

Huberman, B., Loch, C., Öncüler, A. (2004). "Status As a Valued Resource," *Social Psychology Quarterly* 67, 103-114.

Jeffrey, S. A., & Shaffer, V. A. (2007). The benefits of tangible non-cash incentives. *Compensation and Benefits Review* 39(3), 44-50.

Knetsch, Jack and J.A. Sinden (1984). "Willingness to Pay and Compensation Demanded," *Quarterly Journal of Economics*, 65 (4), 507-525.

Larkin, Ian. (2007). "The Cost of High-Powered Incentives: Employee Gaming in Enterprise Software Sales." Working paper, Harvard Business School.

Lazear, E., Rosen, S. (1981). "Rank-Order Tournaments as Optimum Labor Contracts," *Journal of Political Economy* 89, 841-864.

Magnus, Margaret. (1981). "Employee Recognition: A Key to Motivation," *Personnel Journal*, 60(2): 103-107.

Mas, Alexandre and Enrico Moretti (2009). "Peers at Work," *American Economic Review*, 99 (1): 112-145.

Maslow, Abraham (1943). "A Theory of Human Motivation," *Psychological Review*, 50 (4): 370-396.

Neckermann, Susanne and Bruno S. Frey (2007). "Awards as Incentives." IEW Working Paper No. 334, University of Zurich.

Neckermann, Susanne and Bruno S. Frey (2008). "Awards: A View from Psychological Economics." IEW Working Paper No. 357. University of Zurich.

Neckermann, Susanne and Michael Kosfeld (2008). "Working for Nothing? The Effect of Non-Material Awards on Employee Performance." Working Paper, Institute for Empirical Research in Economics, Zurich.

Niederle, Muriel and Lise Vesterlund (2007). "Do Women Shy Away from Competition? Do Men Compete Too Much?" *The Quarterly Journal of Economics*, 122(3), 1067-1101.

Rege. Mari (2008). "Why Do People Care About Social Status?" *Journal of Economic Behavior and Organization*. 66, 233-242.

Sillano, Mauricio and Juan de Dios Ortuzar (2005). "Willingness-to-pay Estimation with Mixed Logit Models: Some New Evidence," *Environment and Planning*, 37: 525-550.

Spence, A. 1974. *Market Signaling*. Cambridge: Harvard University Press.

Train, K. 2009. *Discrete Choice Methods with Simulation*. 2nd edition. Cambridge University Press.

**Table 1: Illustrative enterprise software application salesperson quarterly compensation scheme**

| Income source | Incremental compensation |
|---|---|
| Base salary | **$ 12,000** |
| Commissions on incremental sales | |
| **-- on first $250,000 in sales** | **2% of sales (max of $5,000)** |
| **-- on next $250,000 in sales** | **4% of incremental sales (max of $10,000)** |
| **-- on next $500,000 in sales** | **8% of incremental sales (max of $40,000)** |
| **-- on next $1,000,000 in sales** | **12% of incremental sales (max of $120,000)** |
| **-- on next $2,000,000 in sales** | **15% of incremental sales (max of $300,000)** |
| **-- on next $2,000,000 in sales** | **20% of incremental sales (max of $400,000)** |
| **-- amount above $6,000,000** | **24% of incremental sales** |

Source: Disguised example from company providing data for this research

**Figure 1: Illustrative enterprise software application salesperson quarterly compensation scheme**

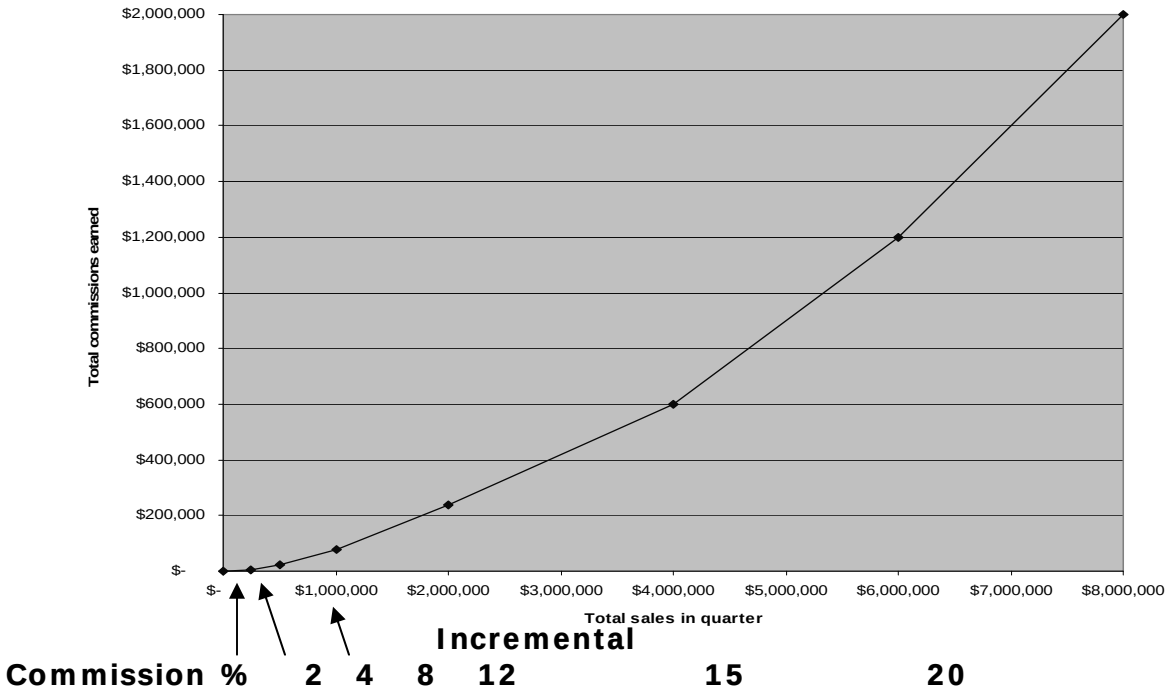

**Table 2: Summary statistics for key variables, N=4,412**

| Variable | Unit | Mean | Std. Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| *Basic deal characteristics* | | | | | |
| Total price paid | $1,000 | 660 | 771 | 50 | 7,890 |
| Total discount given | % | 35.6 | 14.1 | 5 | 95 |
| Total commission earned | $1,000 | 34.6 | 28.7 | 1.5 | 2,367 |
| *Salesperson characteristics* | | | | | |
| Tenure at time of deal closing | # of quarters | 12.8 | 8.5 | 1 | ** |
| Multi-salesperson deal | % | 0.04 | 0.20 | 0 | 1 |
| Female salesperson | 1=yes | 0.09 | 0.30 | 0 | 1 |

Note: ** represents that the data is not reported per agreement with the provider of the dataset (to protect its identity or identity of customers).

**Table 3: Announced 10th percentile cutoffs as of the end of the third quarter, and the number of salespeople with total sales close to the announced cutoff.**
**(Note: we refer to these salespeople as "at risk" of making the "Sales Club.")**

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|
| Total sales at the 10th percentile cutoff as of end of Q3 | $3.62m | $3.98m | $4.41m | $3.61m | $3.28m | $3.30m |
| # salespeople with total sales at end of third quarter within: | | | | | | |
| 5% of cutoff | 16 | 19 | 24 | 23 | 19 | 21 |
| 10% of cutoff | 38 | 40 | 42 | 43 | 47 | 50 |
| 15% of cutoff | 44 | 45 | 48 | 52 | 53 | 58 |
| 20% of cutoff | 51 | 52 | 55 | 59 | 61 | 66 |

**Table 4: Announced 10th percentile cutoffs as of the end of the third quarter, and the number of "At Risk" salespeople who have sales in Quarter 1 of the next year which put the salesperson on a higher accelerator than they ended on in Quarter 4 of the year in question.**
**(Note: we refer to these salespeople as the "choice group," since they are in effect choosing whether to increase the likelihood they make the "Sales Club," or increase their commissions.)**

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|
| Total sales at the 10th percentile cutoff as of end of Q3 | $3.62m | $3.98m | $4.41m | $3.61m | $3.28m | $3.30m |
| # salespeople within: | | | | | | |
| 5% of cutoff | 6 | 9 | 11 | 10 | 8 | 12 |
| 10% of cutoff | 17 | 19 | 19 | 20 | 23 | 22 |
| 15% of cutoff | 22 | 24 | 27 | 31 | 29 | 33 |
| 20% of cutoff | 25 | 29 | 33 | 37 | 40 | 38 |
| and have sales in Q1 of the next year that are on a higher accelerator | | | | | | |

**Table 5: Sizes of "Choice" and two placebo groups**

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|
| # salespeople in: | | | | | | |
| "Choice" group* | 25 | 29 | 33 | 37 | 40 | 38 |
| "Quarter Four" group | 36 | 42 | 58 | 60 | 66 | 57 |
| "Choice Not at Risk" group | 27 | 48 | 76 | 112 | 118 | 103 |

* and 20% of cutoff

**Table 6: Summary Statistics for ΔMB variable**

| Group | N | Mean | Std. Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| "Choice" group/20% cutoff | 202 | 37,343 | 37,538 | 3,370 | 164,416 |
| "Quarter Four" group | 319 | 45,641 | 42,180 | 3,000 | 192,900 |
| "Choice Not at Risk" group | 484 | 48,118 | 51,105 | 3,000 | 212,000 |

**Table 7: Deal timing model, marginal effects after logit**
*Dependent variable = timing of deal close (quarter t or quarter t-1); robust standard errors in parentheses*
*Note: quarter t-1 is the base outcome*

| | (A) Choice Group | (B) Quarter 4 Group | (C) Choice Not at Risk Group |
|---|---|---|---|
| ΔMB | -.0000138 (.0000042)*** | -.0000341 (.0000119)*** | -.0000303 (.0000105)*** |
| Controls not reported | Year, product, sales region, salesperson tenure | | |
| N | 202 | 319 | 484 |

***, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively

**Table 8: Comparison of career rewards to "award winners" and "non-award winners" in the three years immediately after the award**

| Variable | Award Winners | Non-Award Winners | T-statistic | P-value |
|---|---|---|---|---|
| (Total number of salespeople) | 38 | 98 | | |
| Future average quarterly sales | 1.368 million | 1.465 million | 1.04 | .30 |
| Future average quarterly commissions | $127,090 | $136,157 | 1.58 | .12 |
| Probability of promotion | .035 | .043 | 0.12 | .89 |
| Probability of voluntary departure | .367 | .328 | 1.02 | .31 |

**Table 9: Comparison of career rewards to "award winners" and "non-award winners" from the time of the award until June, 2009**

| Variable | Award Winners | Non-Award Winners | T-statistic | P-value |
|---|---|---|---|---|
| (Total number of salespeople) | 38 | 98 | | |
| Future average quarterly sales | 1.056 million | 1.158 million | 1.05 | .29 |
| Future average quarterly commissions | $74,256 | $78,038 | 0.99 | .33 |
| Probability of promotion | .054 | .060 | 0.08 | .94 |
| Probability of voluntary departure | .765 | .804 | 0.68 | .50 |

**Table 10: Sample averages for newly-constructed variables**

| **Variable** | **Within 5% of Q3 cutoff** | **Within 10% of Q3 cutoff** | **Within 15% of Q3 cutoff** | **Within 20% of Q3 cutoff** |
|---|---|---|---|---|
| **Total number of salespeople** | **56** | **120** | **166** | **202** |
| "Commission at risk" | 24,414 | 28,602 | 33,098 | 37,343 |
| "Chose the award" dummy | 0.77 | 0.68 | 0.54 | 0.47 |
| "Chose commissions" dummy | 0.23 | 0.32 | 0.46 | 0.53 |
| Within "chose the award": | | | | |
| "Made Sales Club" dummy | 0.80 | 0.76 | 0.75 | 0.75 |
| "Commission at risk" | 16,118 | 19,132 | 19,975 | 18,116 |
| Within "chose commissions": | | | | |
| "Made Sales Club" dummy | 0.03 | 0.08 | 0.11 | 0.13 |
| "Commission at risk" | 62,129 | 48,681 | 46,756 | 41,074 |

**Table 11: OLS Choice model**
***Dependent variable = choosing the award; robust standard errors in parentheses***

| | (A) | (B) | (C) | (D) |
|---|---|---|---|---|
| | +/- 5% | +/- 10% | +/- 15% | +/- 20% |
| $CAR_i$ | -.00005 (.00004) | -.000005 (.00002)** | -.00006 (.00002)*** | -.000007 (.00002)*** |
| **Salesperson tenure** | .0076 (.010) | .0081 (.0065) | .0110 (.0065)* | .0098 (.0051)** |
| **Length of salesperson-manager relationship** | .0001 (.0001) | .0001 (.0001) | .0001 (.0001) | .0001 (.0001) |
| **Female dummy** | -.39 (-.17)** | -.41 (-.18)** | -.44 (-.18)*** | -.46 (-.18)*** |
| **Constant** | .717 (.237)*** | .684 (.205)*** | .650 (.165)*** | .634 (.152)*** |
| **Controls not reported** | Product class, customer industry, year fixed effects | | | |
| **R-squared** | .2650 | .2711 | .2951 | .2882 |
| **N** | 56 | 120 | 166 | 202 |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**

**Table 12: Logit choice model, marginal effects of logit estimating probability of "choosing the award"**
***Dependent variable = choosing the award; robust standard errors in parentheses***

| | (A) | (B) | (C) | (D) |
|---|---|---|---|---|
| | +/- 5% | +/- 10% | +/- 15% | +/- 20% |
| $CAR_i$ | -.000011 (.00001) | -.000012 (.00006)** | -.000014 (.00006)*** | -.000014 (.00005)*** |
| **Salesperson tenure** | .0131 (.0119) | .0151 (.0138) | .0128 (.0065)* | .0147 (.0076)** |
| **Length of salesperson-manager relationship** | .0001 (.0001) | .0001 (.0001) | .0001 (.0001) | .0001 (.0001) |
| **Female dummy** | -.19 (-.08)** | -.23 (-.11)** | -.25 (-.11)*** | -.29 (-.12)*** |
| **Controls not reported** | Product class, customer industry, year fixed effects | | | |
| **N** | 56 | 120 | 166 | 202 |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**

**Table 13: Estimates for the "value of the award" to the average salesperson**

| Method | Within 5% of Q3 cutoff | Within 10% of Q3 cutoff | Within 15% of Q3 cutoff | Within 20% of Q3 cutoff |
|---|---|---|---|---|
| **Total number of salespeople** | **56** | **120** | **166** | **202** |
| OLS | 37,543 | 35,755 | 34,667 | 33,450 |
| Standard error | 28,100 | 16,430* | 14,101** | 14,734** |
| Logit | 34,275 | 31,148 | 27,979 | 27,110 |
| Standard error (delta method) | 29,046 | 17,641 | 15,633* | 12,354** |
| Mixed Logit | 35,746 | 32,419 | 28,943 | 27,260 |
| Standard error (delta method) | 31,934 | 23,247 | 18,704 | 13,956* |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**

**Table 14: Estimates of the "value of the award" to the average male and average female salesperson (note: sample is from the "within 20% of Q3 cutoff" group)**

| Method | Total Sample | Men | Women |
|---|---|---|---|
| **Total number of salespeople** | **202** | **170** | **32** |
| OLS | 33,450 | 36,167 | 15,008 |
| Approximate standard error | 14,734** | 16,453** | 8,167* |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**

**Table 15: Choice model, marginal effects after logit estimating probability of "choosing the award" when "the award" refers to a non-award placebo of being above the noted percentile**
***Dependent variable = choosing the award; robust standard errors in parentheses***

| | (A) | (B) | (C) | (D) |
|---|---|---|---|---|
| | **20th percentile** | **30th percentile** | **50th percentile** | **75th percentile** |
| $CAR_i$ | -.00036<br>(-.00010)*** | -.00030<br>(-.00011)*** | -.00033<br>(-.00012)*** | -.00037<br>(.00015)*** |
| **Controls not reported** | Salesperson controls, Product class, customer industry, month fixed effects | | | |
| **N** | 240 | 302 | 466 | 231 |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**

**Table 16: Estimates of the "value of the award" to the average salesperson, when "the award" refers to a non-award placebo of being above the noted percentile**

| **Method** | **20th percentile** | **30th percentile** | **50th percentile** | **75th percentile** |
|---|---|---|---|---|
| **Total number of salespeople** | **240** | **302** | **466** | **231** |
| Logit | 942 | 568 | 1,095 | 286 |
| Standard Error (delta method) | 1,890 | 1,017 | 1,954 | 654 |

*****, **, * represent statistical significance at the 1%, 5% and 10% levels, respectively**