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# Experimental Evidence for Agency Models of Salesforce Compensation

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## Abstract

Academic work on sales compensation plans features agency models prominently, and these models have also been used to build decision aids for managers. However, empirical support remains sketchy. We conducted three experiments to investigate three unresolved predictions involving the incentive-insurance trade-off posited in the model. First, compensation should be less incentive loaded with greater effort-output uncertainty so as to provide additional insurance to a risk-averse agent. Second, flat wages should be used for verifiable effort so as to avoid unnecessary incentives. Third, less incentive-loaded plans should be used with more risk-averse agents so as to provide additional insurance.

Our design implemented explicit solutions from a specific agency model, which offers greater internal validity, compared to extant laboratory designs that either did not implement explicit solutions or excluded certain parameters. In Experiment I, data from working manager subjects supported the first prediction but only when risk-averse agents undertook nonverifiable effort. We interpret this as disclosing the model's "core" circumstance, wherein it orders the data when the incentive-insurance trade-off is relevant. Thus, when verifiable effort made incentives moot, as is the case for the second prediction, the model failed to order the data.

Building on these results, we reasoned that the third prediction should find support among risk-averse agents but not among risk-neutral agents, because insurance is a moot point with the latter agents. To this end, we added risk-neutral utility functions for agents in Experiment II. Data from MBA-candidate student subjects supported the predictions, but only when risk-averse agents undertook nonverifiable effort. In those cells in which the incentive-insurance trade-off was moot (either because of risk-neutrality or else verifiability), the data did not support the predictions.

We confronted several validity threats to these results. To begin, Experiment I used the standard agency solution, which equalizes an agent's expected utility from the predicted plan with his expected utility from rejecting it. Subjects might have broken these ties on such grounds as fairness. To assess whether this confounded the results, we derived new solutions in Experiment II that broke ties in

favor of the predicted plan (by a 10% margin in the expected utility). Our results were robust to this change.

Second, our agents' behavior in Experiments I and II was much more consistent with predictions, compared to the principals' behavior, which brought up task comprehension as a validity threat because our principals faced a more complex experimental task than the agents. To address this threat, we used three decision rounds in Experiment III to reduce the principals' task comprehension problems. A related validity threat arose from the relatively small gap in some cells between a principal's predicted expected utility and the principal's next best choice. To address this threat, we derived new solutions with larger gaps to make the principal's choices "easier." The results were again robust to these changes, which removes these validity threats.

We also addressed two alternative explanations. Might principals be predisposed to pick salary plus commission plans regardless of the model's predictions? If so, we should find such plans chosen uniformly across different experimental conditions. Pooling the data from our three experiments, we rejected this predisposition explanation by finding variation that was more consistent with treatment differences across cells. Second, might agents choose higher effort levels because of a demand bias? If so, we should find agents picking high effort regardless of the plan actually offered to them. Using pooled data, we rejected this explanation by finding variation that was more consistent with a utility-maximizing reaction to the plan actually offered to them.

Finally, we included manipulation checks to assess whether principals and agents perceived experimental stimuli identically, as per the "common knowledge" assumption in game theory. These data showed no differences between agents' and principals' perceptions of stimuli.

Our experiments move the literature from simply asking whether the model works to pinpointing the circumstances in which it orders behavior. The primary stylized fact we uncovered is the persistent and striking lack of support for the agency model outside of the circumstance in which risk-averse agents undertake nonverifiable effort. The model's failure when there is no material insurance-incentive trade-off deserves scrutiny in future work.

*(Experimental Economics; Agency Theory; Sales Compensation; Salesforce)*