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Results from a Follow-up Study

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In the 1995 issue of the *Journal of Cooperatives*, Trechter and King reported findings from a survey of managerial compensation practices in Minnesota and Wisconsin cooperatives that was conducted in 1993. The results from that study indicated that overall compensation and bonuses received by general managers of local cooperatives were more closely associated with cooperative size measures than with levels of profitability. The results also suggested that there was not a strong relationship between compensation practices and cooperative performance, measured by return on assets.

A follow-up compensation survey was conducted in 1994. The study population was expanded to include local cooperatives in North Dakota, along with the Minnesota and Wisconsin cooperatives that responded to the first survey questionnaire. In addition, new questions were added to the survey to elicit information on the use of specific cooperative performance targets in settings where there were no explicit incentive clauses in the manager’s contract. Finally, collecting compensation data for a second consecutive year made it possible to analyze factors associated with changes in compensation levels.

Results from this follow-up survey are reported here. In the sections that follow, data collection procedures are first briefly summarized. Then findings regarding compensation levels and changes in compensation performance are presented.

Data Collection

Data collection procedures for this study were essentially the same as those for the initial survey, as described in greater detail by Trechter and King (pp. 50-51). Mail survey
questionnaires completed by both the cooperative manager and the board chair were the source of data on cooperative characteristics, compensation practices, and compensation levels. These data were supplemented with financial data for each cooperative from the financial statement database maintained by the St. Paul Bank for Cooperatives.

Questionnaires were mailed to the 120 Minnesota and Wisconsin cooperatives that returned both questionnaires in the first survey. Of these 75 returned complete responses to both questionnaires in the follow-up survey. Questionnaires were mailed to 159 cooperatives in North Dakota. Of these, 22 returned complete responses to both questionnaires. Overall, then, the response rate for this survey was 35% — identical to that in the first survey. The questionnaire sent to managers of North Dakota cooperatives differed slightly from that sent to managers in the other two states. Information on compensation levels for both the current year and previous year was requested from the North Dakota managers, since compensation data were not collected from them in the initial survey. Of the 98 cooperatives that returned complete responses to both questionnaires, four cooperatives were eliminated from the analysis because of inconsistent information on benefits, and one cooperative was eliminated because it sustained catastrophic losses in 1992. Therefore, there were 92 cooperatives in the final sample.

Summary information for the cooperatives included in this study is presented in Table 1. The size groupings for Farm Supply and Marketing cooperatives are the same as those used in reporting results from the initial survey (Trechter and King, p. 52).

Levels of Compensation

One of the primary objectives of the initial survey was to identify relationships between cooperative and manager characteristics and the level of compensation received by the manager.
Parameters of the following model were estimated by weighted least squares regression, using total cooperative assets as the weights.

\[
\text{TCOMP}_{t+1} = b_0 + b_1 \text{LNM}_i + b_2 \text{TA}_i + b_3 \text{SALES}_i + b_4 \ln(\text{MANEX}_i) + b_5 \text{DEGREE}_i + b_6 \ln(\text{NLINE}_i) + u_i
\]

where TCOMP is total compensation (the sum of salary, bonuses, commissions, and benefits), LNM is local net margin, TA is total assets, SALES is total sales, MANEX is years of management experience, DEGREE is a binary variable equal to one of the manager has a four-year college or graduate degree, NLINE is the number of lines of business for the cooperative, \(b_0\) to \(b_6\) are parameters to be estimated, and \(u_i\) is a stochastic error term. The cooperative and manager characteristics on the right hand side of the model is for year \(t\), while compensation is for year \(t+1\). Therefore, this model allows a board to use known factors to establish an “expected” compensation level for the coming year.

Trechter and King reported positive signs for all parameter estimates, as expected. The parameter estimates for LNM and NLINE were not statistically significant at the 0.05 level of significance, however. These results for compensation levels in 1992 suggested that managerial compensation was not closely linked to profitability or to the complexity of the manager’s task. Parameters for this same model were estimated by weighted least squares regression, using 1993 compensation data from the follow-up survey. In the following results, numbers in parentheses are \(t\) statistics.
(2) \[ TCOMP_{t+1} = 19402 + 0.031364LNM_t + 0.0022036TA_t + 0.00065492SALES_t + \\
(6.527) \quad (2.462) \quad (1.745) \quad (1.433) \]
\[ 2160\ln(MANEX_t) + 7984\text{DEGREE}_t + 1471\ln(NLINE_t) \]
\[ (1.756) \quad (4.321) \quad (4.393) \]
\[ \text{Adjusted } R^2 = 0.6399 \]

Once again, all parameter estimates have positive signs, as expected. Parameters for local net margin, the four-year degree binary variable, the number of lines of business, and the constant term are all significantly different from zero at the 0.02 level. Parameters for total assets and the log of managerial experience are significantly different from zero at the 0.10 level. Only the parameter for total sales is not significantly different from zero at the 0.15 level. In contrast to results for 1992, these results suggest that compensation was closely related to profitability and to the complexity of the manager’s task. While it is difficult to compare magnitudes for individual parameter estimates, the change in the addition to compensation for holders of a four-year degree is noteworthy. For 1992, the parameter estimate was $4594 — considerably less than the 1993 estimate of $7984.

Bonuses are an important part of the compensation package for many local cooperative managers. They are a tool boards can use to reward outstanding overall performance or specific accomplishments in more narrowly defined areas that are critical to the short- and long-term success of the cooperative. In the initial survey, 47% of the managers who responded received a bonus as part of their 1992 compensation package. Only 7% of the respondents indicated that pre-determined incentive clauses were used to determine their bonus. In the follow-up survey, 57% of the managers responding received a bonus in 1993, and 25% of the respondents indicated that their bonuses were based on specific incentive clauses.
In the analysis of data collected in the initial survey, Trechter and King found no statistically significant relationship between profitability, as measured by local net margin, and the bonus received by the manager. They did report weak but statistically significant relationships between bonus and two size measures: total assets and total sales. The following Tobit regression model was specified to investigate relationships between bonuses and cooperative performance levels reported in the follow-up survey.

\[
(3) \quad \text{BONUS}_{it} = \min(0, \text{ICLAUSE}_i[b_0TA_{it} + b_1LNM_{it} + b_2DSALE_{it} + b_3DLNW_{it}]) \\
+ \min(0, \text{ICLAUSE}_i - 1)[b_4TA_{it} + b_5LNM_{it} + b_6DSALE_{it} + b_7DLNW_{it}] + u_{it}
\]

where BONUS is the bonus received in 1993, ICLAUSE is a binary variable equal to 1 if the manager’s bonus was based on a specific incentive clause formula, TA and LNM are total assets and local net margin in this fiscal year that ended just prior to the bonus payment, DSALE and DLNW are changes in sales and local net worth in the fiscal year ending just prior to the bonus payment, \(b_0\) through \(b_7\) are parameters to be estimated, and \(u_i\) is a stochastic error term. Once again, observations were weighted by total assets to correct for heteroskedasticity. This specification allows for differences between cooperatives that use incentive clauses and those that do not.

When the full model was estimated, only \(b_1, b_3,\) and \(b_6\) were significantly different from zero at even the 0.30 level of significance. Therefore, the model was restricted to include only these parameters. The estimation results, with \(t\) statistics in parentheses, are:
Squared correlation between observed and expected values = 0.2350

For managers with incentive clauses, the predicted bonus is slightly less than 2 percent of local net margin. For managers without incentive clauses, the predicted bonus is slightly more than 2.5 percent of sales growth exceeding a threshold level related to the size of the cooperative’s total assets. In contrast to the results for 1992, then, these results suggest that bonuses are related to profitability in cooperatives that use incentive clauses. In cooperatives that do not use incentive clauses -- the majority of cooperatives in the sample -- the manager’s bonus is most closely associated with growth in sales volume.

Changes in Compensation

A manager’s total compensation reflects the history of compensation decisions made by the board during the manager’s tenure. A high level of compensation may be due to superior performance in the past, rather than in the present. Therefore, changes in compensation may provide more useful insights on the factors boards emphasize when evaluating a manager’s current performance. The follow-up survey made it possible to estimate relationships between changes in compensation and various measures of cooperative performance.

Total compensation for a manager is comprised of a salary, which can be viewed as a base
component of compensation that would decline only in very unusual circumstances; bonuses and commissions, which are not a permanent part of the compensation package; and benefits, which generally reflect compensation policies that apply to all employees.¹ Changes in the first two of these components -- salary and bonus -- are the primary instruments boards use to signal their assessment of the manager’s performance. Changes in salary, because they are essentially permanent, are most likely to be used to reward permanent improvements in the cooperative’s position and are less likely to reflect transitory changes. On the other hand, bonuses can be more reflective of short-term changes in performance. In this analysis, we consider absolute and percentage changes in salary (DSAL and PDSAL, respectively) and absolute and percentage changes in the sum of salary and benefits (DSB and PDSB, respectively)². Benefits were not included in this analysis for two reasons. First, as noted above, changes in benefits may reflect cooperative policies that apply equally to all employees or changes in costs for employee insurance coverage. Second, there were some inconsistencies in benefit data from the two surveys that were difficult to reconcile. We believe some of these inconsistencies were due to difficulties in actually calculating the value of benefits.

Measuring cooperative performance is difficult, since the ultimate benefits from a cooperative should be reflected in the financial position and performance of its members. In this analysis, the explanatory variables included absolute and percentage changes in three commonly used performance measures: local net margin (DLNM and PDLNM, respectively for absolute and percentage changes), sales (DSALES and PDSALES, respectively), and local net worth (DLNW and PDLNW, respectively). Several measures of current profitability were also considered, including local net margin (LNM), return on assets (ROA), and relative return on assets (RELROA), which was defined as the ratio of the cooperative’s ROA to the average ROA for
None of these variables added to the explanatory power of the model, however, and they were ultimately excluded from the analysis. Finally, the percentage change in a measure of operating efficiency -- the ratio of gross margin plus sales from services to total operating expenses -- was also considered in the analysis of percentage changes in compensation. This variable was named PDOE.

Absolute changes in salary and salary and bonuses were regressed on DLNM, DSALES, and DLNW, with each observation weighted by total assets to correct for heteroskedasticity. The regression results follow, with t-statistics for parameter estimates in parentheses.

\[
\begin{align*}
DSAL &= 643.99 + 0.0069214DLNM - 0.000068120DSALES + 0.005329DLNW \\
&= 643.99 + 0.0069214DLNM - 0.000068120DSALES + 0.005329DLNW \\
\text{(2.869)} &\quad \text{(2.251)} &\quad \text{(-0.2525)} &\quad \text{(2.567)} \\
\end{align*}
\]

\(\text{Adjusted } R^2 = 0.1222\)

\[
\begin{align*}
DSB &= 697.48 + 0.0089817DLNM + 0.00040129DSALES + 0.0070483DLNW \\
&= 697.48 + 0.0089817DLNM + 0.00040129DSALES + 0.0070483DLNW \\
\text{(2.273)} &\quad \text{(2.137)} &\quad \text{(1.088)} &\quad \text{(1.388)} \\
\end{align*}
\]

\(\text{Adjusted } R^2 = 0.0974\)

It is noteworthy that change in local net margin has a positive coefficient that is significantly different from zero at the 0.05 level in both models and that change in sales does not have a statistically significant coefficient in either model. Change in local net worth, perhaps the best measure of longer term performance, has a statistically significant, positive coefficient in the salary model but is not statistically different from zero at even the 0.15 level in the salary and bonus model. This is consistent with the hypothesis that changes in salary are used to reward permanent changes in the cooperative’s financial position.
Percentage changes in salary and salary and bonuses were regressed on PDLNM, PDSALES, PDLNW, and PDOE. The regression results follow, with t-statistics for parameter estimates in parentheses.

\[
PDSAL = 0.027517 + 0.0062147PDLNM + 0.098292PDSALES - 0.0098469PDLNW + 0.13957PDOE
\]
\[
(3.190) \quad (3.209) \quad (2.844) \quad (-0.1565) \quad (2.819)
\]

Adjusted \( R^2 = 0.2138 \)

\[
PDSB = 0.028311 + 0.0064581PDLNM + 0.18318PDSALES - 0.066666PDLNW + 0.10910PDOE
\]
\[
(2.524) \quad (2.565) \quad (4.076) \quad (-0.8150) \quad (1.695)
\]

Adjusted \( R^2 = 0.2060 \)

Percentage change in local net margin has a positive, highly significant coefficient in both models. In contrast to the results for absolute changes in compensation, percentage change in sales has a positive, statistically significant coefficient in both of these models, while percentage change in local net worth does not have a statistically significant coefficient in either model. It is noteworthy that the coefficient of PDSALES is much larger in the second model, indicating that changes in bonuses are more strongly influenced by growth in sales than are changes in salary. Finally, percentage change in operating efficiency has positive coefficients that are statistically different from zero at the 0.10 level in both models. The effects of improvements in operating efficiency are stronger, however, in the model that only includes changes in salary in the
dependent variable. This suggests that changes in operating efficiency may be viewed by boards as more permanent changes.

**Concluding Remarks**

The results from this follow-up study on managerial compensation in local cooperatives provide a new perspective on relationships between cooperative performance and managerial compensation. In general, they suggest a stronger relationship between the general manager’s compensation and cooperative profitability and operating efficiency than was found in the initial study. It is not possible to determine definitively whether these findings or those from the first survey more truly reflect current compensation patterns in these cooperatives. We do believe, however, that the patterns and relationships reported here are more consistent with compensation practices that can be sustained in the long run and will encourage managerial actions that are in the best interests of cooperative members.
<table>
<thead>
<tr>
<th></th>
<th>Farm Supply</th>
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<th>Marketing</th>
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<tr>
<td></td>
<td>Small (&lt;$5 Million)</td>
<td>Medium ($5-$10 Million)</td>
<td>Large ($10+ Million)</td>
<td>Small (&lt;$10 Million)</td>
<td>Medium ($10-$19 Million)</td>
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<td>30</td>
<td>28</td>
<td>12</td>
<td>9</td>
<td>6</td>
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<tr>
<td>Coop Characteristics:</td>
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<tr>
<td>Members</td>
<td>916</td>
<td>1217</td>
<td>3660</td>
<td>266</td>
<td>638</td>
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<tr>
<td>Employees</td>
<td>11</td>
<td>23</td>
<td>58</td>
<td>5</td>
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<td>Lines of Business</td>
<td>5.7</td>
<td>8.0</td>
<td>8.6</td>
<td>4.5</td>
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<td>Total Assets '92</td>
<td>1,919,495</td>
<td>7,364,476</td>
<td>7,677,536</td>
<td>2,493,924</td>
<td>5,049,408</td>
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<td>Local Net Margin '93</td>
<td>69,031</td>
<td>170,053</td>
<td>253,320</td>
<td>121,602</td>
<td>113,620</td>
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<td>ROA '93</td>
<td>7.3</td>
<td>5.2</td>
<td>5.4</td>
<td>7.0</td>
<td>3.2</td>
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<td>Manager Characteristics:</td>
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<tr>
<td>% with College Degree</td>
<td>30</td>
<td>57</td>
<td>67</td>
<td>11</td>
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<td>Years Managerial Exp.</td>
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<td>14</td>
<td>16</td>
<td>18</td>
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<td>Compensation Levels '92:</td>
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<tr>
<td>Salary</td>
<td>36,539</td>
<td>47,830</td>
<td>62,600</td>
<td>41,372</td>
<td>43,833</td>
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<td>Bonus</td>
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<td>3,088</td>
<td>2,153</td>
<td>2,511</td>
<td>5,550</td>
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<td>Benefits</td>
<td>4,200</td>
<td>5,481</td>
<td>7,683</td>
<td>5,393</td>
<td>3,917</td>
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<td>Total Compensation</td>
<td>42,253</td>
<td>56,399</td>
<td>72,436</td>
<td>49,276</td>
<td>53,300</td>
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<td>Salary</td>
<td>37,816</td>
<td>46,752</td>
<td>65,675</td>
<td>41,306</td>
<td>46,783</td>
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<td>3,748</td>
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<td>6,883</td>
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<td>6,800</td>
<td>4,892</td>
<td>4,775</td>
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<td>53,188</td>
<td>74,640</td>
<td>49,059</td>
<td>58,441</td>
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</table>
Endnotes

1 Commissions were rarely used by the cooperatives in the study. When present, they are treated as bonuses.

2 Since bonus levels can be zero, it is not possible to analyze percentage changes in bonuses.

3 See Antle and Smith for an investigation of the importance of relative performance in determining compensation for corporate executives.

References
