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**Understanding Compensation Design & Practices in a Unit of a  
Manufacturing Firm: A Case Study**

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**UNDERSTANDING COMPENSATION DESIGN & PRACTICES IN A UNIT OF A  
MANUFACTURING FIRM: A CASE STUDY**

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**ABSTRACT**

We explored the data on managerial compensation, performance ratings and human capital variables, namely education and work experience, from a manufacturing unit in India in order to explain the variation in compensation. The results we obtained provide support for the influence of human capital as well as performance variables on compensation. We also found that human capital variable, specifically education, seemed to impact compensation structure through market value in a way that could be dubbed elitist. There was also some reflection of tournament view in the form of increasing differential for higher designation.

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## INTRODUCTION

In this study, we have attempted to explore the factors which might explain the variation in managerial compensation. We have analyzed the managerial compensation data of a unit of a manufacturing organization in India. We have drawn some tentative conclusions based on our exploration. However, our attempt is not to claim external validity as we are mindful of the possibility that each organization is unique.

Before we present the case of the firm and describe our data analysis, we first briefly discuss some important theoretical ideas in the field of compensation management. We largely focus on the variables which influence compensation level and structure decisions.

### **Theoretical Strands: What influences compensation levels and structure?**

There is extensive literature on what determines compensation in the fields of economics and human resource management. Beginning from labor/product market driven models in the neo-classical economics traditions to post-institutional and industry/firm specific models, individual agency human capital explanations and to individual decision maker's implicit theories, the field has come a long way. While the early explanations saw no role of firm or managers in determining the compensation levels, given the exogenous influence of product and labor market supply and demand functions assuming perfect competition, post- institutionalists saw many market imperfections and distortions, including imperfect labor mobility, imperfect information, role of unions, and so forth.

Some influential work in the post-institutionalists tradition and other fields include- efficiency wage theories, rent or ability to pay models, role of business strategies and the role of human capital variables. The firms and managers have considerable discretion on not only how much to pay but also on how to pay or structure the pay (for example, the ratio between fixed and variable pay; Haire, Ghiselli, & Gordon, 1967; Gerhart & Milkovich, 1990). We provide a brief description of these ideas next.

*Efficiency wage theories, rent sharing and the ability to pay theories:* According to these theories, the decision to pay a particular level of salary is not only dependent on market clearing wage, but also on firm's decision to attract and incentivize better performers. If a firm pays higher than market clearing wage, then it attracts higher performers and can be more selective to get better performing workforce which can make up for the higher pay

differentials. More productive employees also remain with the firm for longer period. This effect is called sorting effect (Groschen, 1988). The other effect is called incentive effect as higher pay spurs greater effort.

Another group of efficiency wage models posits that higher wage can take care of “shirking on the work” issues and reduce monitoring costs. The workers may desist from shirking when they fear loss of premium over market rate if found out (Lazear, 1979; Yellen, 1984). Then there is a gift exchange variant of efficiency wage models (Akerlof, 1984). As per this argument one way employees may respond to over-reward inequity is by increasing their own effort (Adams, 1964). There is some support to this argument. Closely related to efficiency wage theories is the argument that firms earning higher profits will pay more to their employees. Different stakeholders seek their share of rent if firm earns higher profit (Hildreth & Oswald, 1997).

*Human Capital Theories:* Based on works of Becker (1975) and Mincer (1974), it was argued that employees invest in their own productive capacities and there is evidence available in the support of higher returns to the human capital investments (Gerhart & Rynes, 2003). Some organizations may decide to pay employees based on their skills or knowledge (especially true for knowledge-based and high technology industries).

*Role of business strategies:* There is evidence that as organizations align the human resource strategies to business strategies the compensation is accordingly impacted. For example, Batt (2001) found that in telecom sector as the customer segment became large businesses compared to smaller businesses, the need for empowering frontline employees also increased and it was reflected in higher discretionary pay. This effect was mediated by human capital factors.

*Politics of Compensation - Resource Dependence:* Organizations may become resource dependent if the employees they seek to retain are the ones very critical for organizational success (Bartol & Martin, 1990; Pfeffer & Salancik, 1978). Organizations may end up paying higher compensation to such employees compared to others in the organization. In fact, there is evidence that such critical resources may demand higher salaries and may even threaten to leave (Longenecker, Gioia, & Sims, 1987). Appropriating returns from such critical resources is a problem area, especially when these assets are company specific.

*Pay for Performance-Agency theory and motivation literature:* Employee performance can be incentivized by performance-linked variable pay and also by the differentials that exist between pay levels across hierarchy. Pay for performance is a vast sub area within compensation management literature which has been extensively studied in the economics literature as well as in the behavioral science literature. Agency theory (Jensen & Meckling, 1976) in economics is an important theory which grapples with “moral hazard” issues like “agents work shirking” when “information asymmetries” exist between “principals” and “agents.” In order to prevent “moral hazard” issues, it suggests linking “organization interest” of “agent effort” with the “agent interest” of “money or pay.” There is evidence available in support of effect of incentives on better employee performance. Behavioral science explains same effect between monetary rewards and effort through theories of motivation like expectancy theory (Vroom, 1964) and equity theory (Adams, 1965). There is empirical support for these theories.

*Tournament:* Another aspect of compensation is the pay spread between managerial levels across an organizational hierarchy. It is found that as one goes up the hierarchy, the pay differential across levels keeps on increasing. Larger spread at higher levels is intended to encourage more competition for promotion and spur more effort (Lazear & Rosen, 1981). However organizations may decide to have more egalitarian structures with smaller spreads to deemphasize hierarchical differences. The intended outcome is better relation between employees across various levels and cadres which may result into better performance outcomes for organization.

*Pay for seniority or membership:* In internal labor markets (ILMs) as against external labor markets, “the pricing and allocation of labor are governed by a set of administrative rules and procedures” (Doeringer & Piore, 1971, p. 2) and “stability of employment is the most salient feature of the internal labor market” (p. 40). Only at the ports of entry external and internal markets are linked and thereafter ILM rules supplant the market forces for determining the compensation. These rules focus largely on promotion ladders and career progression along these ladders. Under conditions where the knowledge and skill needs do not change for the organization to be competitive, it is more efficient for organizations to enter into long-term employment contracts or develop ILMs (Simon, 1957). The idiosyncratic organization specific knowledge and skill is passed from seniors to juniors. To facilitate this transfer, seniority is given weight in wage determination and promotion decisions so that transfer of knowledge is not seen as creating competition from juniors (Thurow, 1975). This

payment for seniority within firm is different from human capital return one gets based on past experience at the time of joining new job.

The description provided above contains insights about the variables which could have an influence on compensation level. Some variables are influenced by the decisions senior managers may take such as choice of business strategy, egalitarian management philosophy, efficiency-wage concerns and so forth. These decisions influence compensation levels and intend to influence employee's behavior in the desirable direction. However, there are other variables where organizations and decision makers may have less control on compensation decisions and they act more as "takers." These influences include rent seeking from employees, role played by human capital, and resource dependence view discussed above. Then there are decisions which determine pay structure like payment for performance, seniority, and wage differential across managerial levels.

Having described some influential ideas about the determinants of compensation, now we begin the discussion of this case study. This study began with a curiosity to understand and explain the reasons behind the variation in managerial compensation in a unit of a manufacturing firm where the people involved in making such decisions sought our help (described in Case Context section) in explaining the variation to their managers. We looked at the variables available in the archival data and attempted to formulate the best explanations for compensation decisions reflected in the data for fixed and variable compensation. As it is a one firm study, the firm level labor or product market level variables are not included.

The subsequent sections unfold in the following order. We first describe the background leading to this study, the organizational context and then move on to describing the data, our analysis and conclusions.

## **CASE CONTEXT**

Rohit Kapoor<sup>2</sup> was driving back home after a statistics session. It was a Friday. He was tired after a hard day's work and a long three-hour class. But he could not stop thinking about the examples discussed in the business statistics class. One example illustrated how regression analysis could be effectively used to check whether there was any gender

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<sup>2</sup> In order to ensure confidentiality, we have used pseudonyms for the people and the company mentioned in this study. However, the data and events are real.

discrimination or not in the salaries paid to the female executives of a large business organization. In this example, it was shown how in the absence of relevant variables like educational level and work experience, gender appeared to be a strong factor in salary fixation for an executive. But in the presence of these variables (educational level and work experience), gender effect disappeared. Non-existence of gender discrimination came out even more strongly when latest performance-appraisal rating of employees was added as another variable to explain the variation in executive salary. Rohit felt he could employ techniques like these to answer some vexing questions he used to face every year after annual appraisal. Memories of some difficult conversations flooded his mind when he had to struggle really hard while explaining the rationale behind yearly raises and bonuses people received. Someone or the other would always come, ask some uncomfortable questions, and leave shaking her/his head in disbelief. Maybe statistics could help answer their questions in a more convincing way. He decided to talk to his colleague Srikant about this, who was also present in the same statistics class with him.

When Rohit came to office on Monday, he discussed his idea with Srikant. As they thought more and more about the techniques and examples discussed in the last class, they felt more curious...maybe statistics could be useful in understanding and explaining things. They decided to give it a go and share their thoughts with the statistics faculty.

### **Rohit Kapoor**

Rohit worked as a manager in the Human Resources Management department of High Tech Limited (HTL). He had studied commerce and accounting for his graduation, and had subsequently completed his MBA (Master in Business Administration) from a good university in India. He had worked for about 11 years, including his stint with HTL. Of late he had started feeling the need to update himself and devote some time to education. He came across an executive education program offered by Indian Institute of Management Calcutta which suited his needs. Rohit enrolled for this program.

### **Executive Program in Human Resource Management**

This session was a part of the statistics module of a one-year long executive education program on human resource management (EPHRM). Both Rohit and Srikant had joined EPHRM in order to update their knowledge of human resource management (HRM) and

differentiate themselves in the job market. There were 156 participants in EPHRM from all over India. 90% of the sessions of EPHRM were conducted through videoconferencing.

Apart from business statistics, EPHRM modules included basic and advanced topics in HRM and organizational behavior. There were also some sessions on understanding financial statements, costing, and marketing concepts as applied to HRM.

### **High Tech Limited**

High Tech Limited (HTL) was founded in 1983 with the technical collaboration of Japanese and Swiss organizations. Over the years, it has emerged as a well-known manufacturer of high-technology products. Currently it is one of the largest manufacturers worldwide of such products. HTL accounts for about 20% of the world output of such products. Apart from being one of the largest, it is also the lowest-cost manufacturer of such products. Despite being the lowest-cost manufacturer, the products of HTL are of very high quality. The company asserts that the spirit of zero-error drives employees. In fact HTL has received several awards and certifications from international agencies for its product quality.

HTL exports about 85% of its products. It is present in more than 100 countries worldwide. HTL is quite innovative; it has regularly forayed into new technologies and market segments, both nationally and internationally. HTL invests about 3% of its revenue in research and development, and it has a number of patents to its credit.

HTL has three divisions that deal with three different product lines. It has three manufacturing units located in the suburbs of a major city of India. It has over 8,000 employees. HTL has an explicit focus on training. It provides regular training on technical as well as managerial aspects to its workforce. It also has a reward and recognition program throughout the organization. Apart from promotion, employees also move horizontally to gain diverse experiences. Fast track career options are available to chosen employees. People on fast track careers are taken through development centers to identify areas for improvement, and senior employees mentor them. HTL also emphasizes on work life balance.

### **Overview of Appraisal & Compensation Practices in the Unit**

The performance appraisal for the managerial workforce of this unit happens in June every year. There are two main questions related to variable pay before the decision makers.



The first question is about the amount of variable pay based on the appraisal ratings for the previous year. The next main question is about the entitlement of variable pay for the next year. We first describe the main considerations involved in answering the first question.

The unit of HTL under study has an elaborate variable pay design. The stated objectives of the variable pay program are the following: (a) to give employees the opportunity to earn more through performance, (b) to reward higher performance, (c) to promote meritocracy, (d) to align individual and organizational performance, and (e) to drive organizational performance. Variable pay scheme was introduced in 2008. It is applicable to all managers. People holding the ranks of deputy manager and above are eligible to receive variable pay. There are two noteworthy features of this scheme. The first is the entitlement amount for each eligible manager, and the second is the method of calculating the actual payment. The amount an eligible manager is entitled to receive as variable pay is 10% of her/his fixed cost to company (FCTC) or Rs. 50,000, whichever is higher. An eligible manager knows the amount he/she is entitled to receive as variable pay at the beginning of the performance appraisal cycle. The actual payment depends on the performance of the individual as well as of the organization during the performance cycle (which is from April of a year to the March of the next year). In case an eligible manager joins the organization in the middle of a performance cycle, her/his entitlement amount does not get impacted, but the actual payment to her/him is pro-rated.

Individual performance is determined against the target set for each eligible manager at the beginning of the performance cycle. The individual performance is captured on a scale of 1 to 4. A rating of 1 represents no achievement of the target, and a rating of 4 indicates exceeding the target by 50% (150% achievement of the target). The weight of organizational performance increases with the hierarchy. To illustrate, for deputy manager, 80% weight is given to individual performance and the remaining 20% to organizational performance. But for general managers and above, only 50% weight is given to individual performance and the rest 50% is determined by organizational performance. HTL combines the individual and organizational performance numbers for each eligible manager, and the combined metric determines the actual payment against the entitlement amount. The variable pay scheme is designed to discourage lack of performance, and increasingly reward enhanced performance. This aim is achieved by two elements of variable pay design. Firstly, there is no payment under variable pay if the combined metric of individual and organizational performance falls below a preset limit. If the combined metric exceeds the preset floor limit, only then the

eligible manager receives a certain percentage of the amount he/she is entitled to receive as variable pay. And secondly, this percentage of entitlement amount progressively increases as the combined metric of individual and organizational performance increases.

Having determined the amount an eligible manager is going to receive, the second question decision makers tackle is the determination of entitlement amount for the next performance cycle. Generally some increase is there in the existing entitlement amount, and it is also guided by the individual performance rating.

### **DATA AND ANALYSIS METHODS**

The data we analyzed had the following information about 62 managers of this HTL unit:

1. Designation
2. Date of joining HTL
3. Qualification
4. Total work experience (including the experience at HTL)
5. Whether this manager was a key resource or not
6. Fixed and planned variable compensation
7. Performance ratings of last four years 2007-2008 to 2010-2011.

There were three types of designation, namely, manager, deputy manager and assistant manager. Qualification were of three types: first category consisted of BE, B.Tech., MBA, PGDBM, and second category included M.Tech., and third category consisted of basically Diploma, B.Sc. and M.Sc. Performance ratings were given as 'Excellent', 'Very Good', 'Good' and 'Average', which were coded as 4, 3, 2 and 1 respectively for numerical analysis. Information was available on whether a manager was ever a key resource in any of the years 2007-2008 to 2010-2011, particularly the most recent year 2010-2011. Data was also available on fixed and variable compensation planned for the year 2011-2012. The process of planning the variable pay has been discussed in detail in the previous section. To illustrate, during the appraisal cycle in 2010-2011, the decision makers in HTL decided about how much variable payment to make for the performance cycle of 2010-2011, and they also decided about the budgeted variable payment for the next performance cycle in the year 2011-2012.

Rohit thought that he could use statistical tools to explain the reward decisions taken during the performance appraisal process. Based on the discussion with the IIM Calcutta faculty, he sent data on salary increments and other variables which could have possibly explained the performance based reward decisions for various employees. Next we briefly describe the data analysis methods used.

Linear regression analysis (Levine, Stephan & Szabat, 2013) is a very popular statistical tool for understanding or forecasting how the value of a target variable (i.e., the variable of interest, say, salary) changes or will change as the values of 'explanatory variables' (say, educational level, work experience, etc.) change. Some other names for the target variable are 'response variable', 'dependent variable' and 'criterion variable'; and similarly those for explanatory variables are 'independent variables', 'predictor variables'. To be able to forecast using regression analysis technique, an explanatory variable (e.g., work experience of an employee) should be such that one is able to observe its value chronologically before that of the target variable, or one is able to control its value reasonably well unlike that of the target variable (e.g., when advertising expense is used as an explanatory variable for predicting sales).

A linear regression model describes the target variable as a linear combination of the explanatory variables plus an (regression) error term. For example, suppose that one is trying to understand how employee salary is related to educational level, work experience, gender and latest annual appraisal rating for a group of employees. One hopes to keep the values of this (regression) error term as small as possible for the group of employees as a whole. A regression model is declared to have a high 'goodness of fit' if the proportion of variation in the values of the target variable explained by the variation in the values of the explanatory variables is pretty 'close' to 1. This measure is called the coefficient of determination.

Secondly, for the model to be a 'good' model one also checks if the prediction error for an employee (i.e., actual salary minus the regression model predicted salary) can be considered to be unrelated to that for any other employee. To this end one may inspect the scatter plot of the prediction error against the corresponding predicted salary for an employee, to check if there is any familiar pattern in the plot such as exponential, logarithmic, quadratic, polynomial, sinusoidal, and so forth. If no known pattern is detected in the plot, the model is considered to fit the data well.

Thirdly, a well-fitted regression model should be able to predict the values of the response variable for a set of values, of the explanatory variables, set aside for this purpose (called ‘validation sample’). This set of values of each of the explanatory variables in the ‘validation sample’ should not be too far off its range of values in the dataset used in building the regression model (called ‘training sample’). As a measure of the predictive ability of the fitted model one may calculate what is called the ‘mean absolute percentage error’, i.e., average of the absolute percentage errors (APE), which should be as close to zero as possible. Basically it checks if the prediction errors, irrespective of under-prediction or over-prediction, are small compared to the actual values of the target variable, on an average over the validation sample.

Lastly, a good regression model should not have any redundant explanatory variable, which can be statistically checked with adequate data. It is this property that one may use to establish the existence or non-existence of discrimination in salary fixation.

## RESULTS

We ran several regressions to explain the fixed salary, planned variable salary and total salary (fixed plus planned variable compensation) levels. None of the regression equations made complete sense. We chose one regression equation which looked the most sensible from practical as well as statistical viewpoints. According to this chosen regression equation, we could explain close to 73% of the variation in total salary (see Table 1).

**Table 1: Model for Total Compensation for All 62 Managers**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	373384.78	96780.92	3.86	0.00
Total Exp	11242.85	2867.90	3.92	0.00
Rating 2011	18151.05	13221.18	1.37	0.18
Average Past Rating	45802.72	18287.68	2.50	0.02
Desig-AM	-228796.96	32932.75	-6.95	0.00
Desig-DM	-127602.55	32048.45	-3.98	0.00
NEdu-cat1	40417.48	21912.56	1.84	0.07
NEdu-cat2	25440.91	79086.42	0.32	0.75
R Square	0.73			
Adjusted R Square	0.69			

‘Average Past Rating’ shown in Table 1 denote the average of the three years’ ratings before 2010-2011, i.e., ratings from 2007-2008 to 2009-2010. ‘Desig-AM’ and ‘Desig-DM’, in

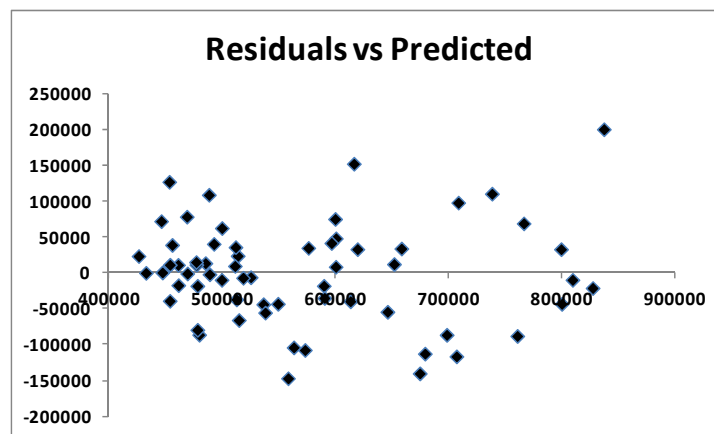
Table 1, represent two binary dummy variables created to model the effect of three categories of managers in the data. Similarly, 'NEdu-cat1' and 'NEdu-cat2' represent two binary dummy variables to capture the effect of three categories of educational qualification.

Coming to what we could explain, it seemed that the following things mattered in the total salary of a person. Firstly, the total work experience positively impacted salary (each year of experience added about Rs. 11,000 to the total salary). Average of the past three years' performance ratings before the year 2010-2011 also mattered a great deal. Each higher rating increased the total salary by about Rs. 46,000. Similarly, designations mattered a great deal. As opposed to a manager, being a deputy manager brought down the salary by about Rs. 1.28 lakh, and being an Assistant manager reduced the salary by about Rs. 2.29 lakh. Being an engineer or an MBA led to an increase of Rs. 40,000 in total salary. Rating of 2011 also mattered; each higher rating added about Rs. 18,000 to the total salary). Though this impact of 2011 rating was likely be less firm, and somewhat wobbly.

These findings seem to conform to the influence of some of the determinants established in the compensation management literature as discussed in the beginning. To illustrate, more experience does bring more total salary, and performance inside a company is rewarded more (as can be seen from much higher increase of Rs. 46,000 due to higher rating vis-à-vis the salary difference of Rs. 11,000 due to one more year of experience). It seems that weight to performance over seniority is much higher in determining compensation raises. Thus there seems to exist certain degree of ILM conditions including long term contracts (average experience of these managers was 15 years) and promotion ladders inside the organization. Promotion to a higher post is relatively rare, and hence expectedly it creates a large salary differential. Another feature is the increasing wage differentials across hierarchy. The differential from assistant manager to deputy manager is Rs 1 lakh and from deputy manager to manager the difference is Rs 1.28 lakh. Thus with increasing level, the incentive to win the promotion game is more incentivized pointing to tournament effect on compensation. Lastly, there seems to exist support for influence of human capital variables of education and prior experience. MBA or engineering education results in higher compensation for employees. However, we also see some counterintuitive results. The impact of 2011 rating on the budgeted variable pay for the year 2011-2012 is minimal; the correlation is 0.21.

In order to explore the data further, we also looked at the cases which seemed to be outliers. As Figure 1 given below indicates, there are some managers for whom even the best model left large amounts unexplained. To explore the possible reasons behind such deviations, we calculated the percentage error in prediction (i.e., prediction error divided by actual, expressed in percentage terms), and chose about 20% as the upper limit for acceptable deviation. Based on this criterion, we found 12 cases to be outliers. The relevant data for these outliers are given in Table 2 below.

**Figure 1: Predicted Compensation (as per the model) vs. Residual**



**Table 2: A Snapshot of Outlier Cases**

Serial No. of Outliers	Designation	Date of Joining	Qualification	Experience in Company	Total Exp	Key Resource	Fixed	Variable	Rating 2011	Rating 2010	Rating 2009	Rating 2008	Actual Annual	Predicted	%age Error
1	Assistant Manager	2-Feb-04	DIP	7.2 Yrs	22.2 Yrs		31296	35909	Excellent	Good	Good		411461	558388.8	-35.7
2	Manager	30-Nov-07	MSC	3.5 Yrs	13.4 Yrs		38342	74648	Good	Very Good	Good		534752	674847.9	-26.2
3	Deputy Manager	19-May-03	BE	7.11 Yrs	7.11 Yrs	KR - 2010	35103	44566	Very Good	Very Good	Excellent	Very Good	465802	573265.3	-23.1
4	Assistant Manager	1-Jul-00	MBA	10.9 Yrs	10.9 Yrs		35315	35712	Excellent	Excellent	Excellent	Excellent	459492	563367.5	-22.6
5	Assistant Manager	25-Jul-05	BE	5.9 Yrs	7.8 Yrs	KR - 2008	31136	20016	Very Good	Very Good	Excellent	Very Good	393648	479828.4	-21.9
6	Assistant Manager	17-Jan-05	BTECH	6.3 Yrs	6.3 Yrs	KR - 2008	31578	19944	Very Good	Very Good	Excellent	Excellent	398880	478231.7	-19.9
7	Deputy Manager	20-Jan-05	DIP	6.3 Yrs	20.4 Yrs	KR - 2008	43096	49705	Good	Very Good	Excellent	Excellent	566857	679381.8	-19.9
8	Deputy Manager	10-Jan-00	MBA	11.3 Yrs	14.7 Yrs		43646	67151	Excellent	Excellent	Excellent		590903	707284.7	-19.7
9	Assistant Manager	19-May-03	DIP	7.11 Yrs	10.8 Yrs		45814	47394	Very Good	Excellent	Very Good	Excellent	597162	488407.1	18.2
10	Manager	1-May-07	BE	3.11 Yrs	16.3 Yrs	KR - 2008	74819	139899	Excellent	Excellent	Very Good	Excellent	1037727	837608.3	19.3
11	Deputy Manager	28-Oct-02	PGDPPT	8.6 Yrs	13.2 Yrs		56841	86541	Very Good	Very Good	Excellent	Excellent	768633	616584.3	19.8
12	Assistant Manager	2-Jun-03	PD	7.10 Yrs	10.4 Yrs		44154	50385	Very Good	Very Good	Very Good	Very Good	580233	453374.8	21.9

We did two things after discovering these outliers. Firstly, we assessed the improvement in the original model once we treat these outliers as two special categories of excessively overpaid (dubbed as 'PosError' in Table 3 below) and excessively underpaid (dubbed as 'NegError' in Table 3) managers. With this new classification, the explanatory

power of the model improved considerably; we could explain approximately 90% of the variation, as Table 3 shows.

**Table 3: Model for Total Annual Compensation (With Outliers as Separate Categories)**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	346049.86	57552.30	6.01	0.00
Rating 2011	17556.68	7985.02	2.20	0.03
Average Past Rating	44087.77	10989.89	4.01	0.00
Total Exp	12496.07	1719.59	7.27	0.00
Desig-AM	-217116.89	19673.26	-11.04	0.00
Desig-DM	-110806.39	19174.10	-5.78	0.00
NEdu-cat1	63998.97	13286.18	4.82	0.00
NEdu-cat2	40128.43	47225.04	0.85	0.40
NegError	-119709.49	17197.70	-6.96	0.00
PosError	150395.09	24065.01	6.25	0.00
R Square	0.91			
Adjusted R Square	0.89			

After accounting for the outliers, i.e., unusually overpaid and underpaid cases, in the above model, the influence of latest performance rating in the year 2011 on compensation becomes statistically significant. This provides some support to the company's intended policy of paying for performance.

The second strand of exploration was to see if we could learn from these excessively overpaid and underpaid cases. With this objective, we looked at them closely and found the following:

1. There were eight managers whose actual total compensation was, on an average, Rs. 1.1 lakh below the level estimated by the model described above. And there were four managers whose actual total compensation, on an average, was about Rs. 1.5 lakh more than the amount the model could predict. The details are available in Table 2.
2. Looking at the manager with the highest shortfall of -35.7% led us to suspect that the so-called inferior qualification (diploma as opposed to degree) coupled with more experience could be responsible for lower than expected compensation. To illustrate, this particular manager (mentioned in serial number 1 of Table 2) had a diploma and had a total experience of more than 22 years and it seemed to us that his/her qualification could be a reason why the compensation was way below the expected value. The person with the second highest shortfall had an M.Sc. and had about 10

years of experience before joining HTL (serial number 2 in Table 2). This person was a manager (the highest designation in our dataset), and yet had a shortfall of 26.2% in compensation. Incidentally only one manager was there in the list of eight people who were receiving excessively lower compensation. Our initial notion about qualification and longer work experience playing a role received further support when we found that another person with manager as designation (serial number 10 in Table 2) had a similar profile in terms of work experience, but was drawing a salary almost twice as much as the person at serial number 2 with so-called inferior qualification of M.Sc. Here we are assuming that BE is considered to be a superior qualification than M.Sc. as students in India usually have to pass a tough entrance test to get a BE or B.Tech. degree, but that is usually not the case for M.Sc. When we looked at another case (serial number 7 in Table 2) of a deputy manager, we found that this person too had a diploma and more than 20 years of experience. And the shortfall in his/her compensation was 19.9%, despite this person being a key resource in 2008 and getting excellent rating in the first two years. Contrary to our emerging notion, however, we also found the case of a diploma holder who was getting overpaid as per our model (his/her data are available in serial number 9 of Table 2). We felt that despite having diploma and “very good” as performance rating in two of the preceding four years, this person was possibly overpaid due to his/her relative newness. The total experience of this person (10.8 years) was roughly half of the total experience of the other two cases (serial numbers 1 and 7, who had 22.2 years and 20.8 years of total experience respectively) mentioned earlier. We do realize that there might be other variables at play here, or that the data in Table 2 could lead to some other possible reasons explaining the excessive overpayment or underpayment. However, we also found an echo of our idea about qualification being an important variable in the human capital theory as the impact of qualification is likely to be pronounced in high-technology organizations. Hence we went ahead and tested the idea of qualification being a source of distortion in compensation.

In order to do that, we ran a regression for predicting the total compensation for all diploma holders following essentially the same model (described earlier in Table 1). What we found that except designation and past performance, no other variable had the potential to explain the salary variation for diploma holders. Past experience mattered, but only faintly. After discarding the redundant variables, we came to a



model which is shown in Table 4. One can see that when compared to the best model for non-diploma holders (given in Table 5), each higher rating in the latest performance assessment of 2010-2011 yielded about Rs. 40,000 more for non-diploma holders, and the coefficient was significant. But that is not happening for diploma holders.

**Table 4: Model for the Total Compensation of 21 Diploma-Holder Managers**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	480598.28	142181.57	3.38	0.00
Average Past Rating	65434.25	24097.15	2.72	0.02
Desig-AM	-258779.47	50593.74	-5.11	0.00
Desig-DM	-163918.92	46357.59	-3.54	0.00
Total Exp	5406.62	4287.74	1.26	0.23
R Square	0.81			
Adjusted R Square	0.77			

3. We also similarly explored the best model for the managers having qualifications higher than diploma. This is shown in Table 5 below. By comparing the best models for diploma holders and others, we find that past experience matters for people with other, more significant qualifications (such as B.Tech. and MBA). But the past experience does not come out as significant for diploma holders.

**Table 5: Model for the Total Compensation of 41 Managers with Higher Qualification**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	428617.10	87301.96	4.91	0.00
Rating 2011	40147.82	15871.47	2.53	0.02
Total Exp	14853.16	3915.36	3.79	0.00
Desig-AM	-212831.69	41587.21	-5.12	0.00
Desig-DM	-111480.29	40924.24	-2.72	0.01
R Square	0.72			
Adjusted R Square	0.68			

These results made us suspect that the compensation decisions for the people with higher qualifications could be dubbed elitist in nature as opposed to people with diploma qualifications. A few things make us suspect that. Firstly, the impact of past experience is significant for people with higher qualifications, while this is not so for diploma holders. We surmise that the past experience might be getting consumed when decision makers allow a person with diploma to break into management cadre. Subsequent to that, the cumulative performance rating matters more for diploma holders, while it does not matter for highly qualified people. It seems that people having higher qualifications have compensation structure which is less risky compared to diploma holders. Experience or seniority makes for

assured component of salary raise. There is some research evidence that influential managers may bargain for compensation structure which is more risk proof especially when their performance outcomes are more uncertain. When we look at the immediate past rating, however, the picture gets reversed. The immediate past rating has a significant bearing on compensation for the highly qualified people, but it does not matter for people with diploma holders. Possibly, the higher job mobility options for highly qualified people make the decision makers consider their immediate performance more, and due to lesser mobility options, the bargaining power for diploma holders basis their immediate performance is lower. This we suspect could be due to the resource dependence variations for diploma and non-diploma holders. The latter might be considered by organization as relatively more indispensable. This will become clearer when we analyze the influence of key resource variable on variable salary.

As the total salary had a large share of fixed compensation, we thought that considering variable salary as the dependent variable in our analysis might yield more discernible patterns. Hence we explored the data set with planned variable salary as the dependent variable. Table 6 shown below describes the best model we could find.

**Table 6: Model for Planned Variable Compensation for All 62 Managers**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	30196.71	18270.48	1.65	0.10
KR	7231.77	4199.30	1.72	0.09
Rating 2011	3508.54	2508.41	1.40	0.17
Average Past Rating	7473.52	3567.58	2.09	0.04
MBIL Exp	-363.95	725.63	-0.50	0.62
Total Exp	1639.94	582.52	2.82	0.01
Desig-AM	-44017.35	6553.25	-6.72	0.00
Desig-DM	-29279.33	6352.04	-4.61	0.00
NEdu-cat1	5011.07	4202.73	1.19	0.24
NEdu-cat2	-12760.01	15019.13	-0.85	0.40
R Square	0.72			
Adjusted R Square	0.68			

When we examined the variable pay as the dependent variable, we found that the 2011 rating did not matter. This was surprising (as mentioned previously as well), considering that the variable pay should have been driven quite strongly by individual rating in the past year. Even though the variable pay calculation scheme followed by HTL put strong emphasis on company performance as well as individual performance while calculating the variable payment, the insignificant impact of 2011 rating probably conveys that a manager could not expect to get more money by improving her/his rating. And this could be de-motivating for a person. At the same time, we want to highlight that the average

rating of 2008, 2009 and 2010 came out as having a significant impact on variable pay. But the way it should impact the variable pay is not clear. One could speculate that the better past ratings would have translated in higher fixed pay, which in turn had a pretty strong impact on the determination of variable pay. Incidentally, the correlation between average of past ratings and fixed salary is 0.25, and it is significant.

The experience within HTL did not matter, but the total experience was a significant predictor. Designation was important, but educational qualification did not seem to play any role in variable compensation. Subsequent to this, we revised our model and came to the following model

**Table 7: Revised Model for Planned Variable Pay for All 62 Managers**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	42178.41	16172.98	2.61	0.01
KR	7947.22	4132.95	1.92	0.06
Average Past Rating	8400.39	3534.76	2.38	0.02
Total Exp	1278.84	490.71	2.61	0.01
Desig-AM	-45870.03	6317.60	-7.26	0.00
Desig-DM	-29683.30	6065.97	-4.89	0.00
R Square	0.70			
Adjusted R Square	0.67			

Looking at the results of previous regression, we derived the above model. As one can see, being a key resource, average rating of 2008, 2009 and 2010, total work experience and designation mattered in determining the variable pay. Then we checked the validity of this model separately for diploma holders and people with other qualifications. When we examined the validity of this model for diploma holders and people with other qualification, what we found is provided in Tables 8 and 9 respectively.

**Table 8: Model for the Variable Pay of 21 Managers with Diploma**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-5336.97	29477.32	-0.18	0.86
KR	-1884.43	7759.28	-0.24	0.81
Average Past Rating	15336.28	5299.40	2.89	0.01
Total Exp	2129.43	877.58	2.43	0.03
Desig-AM	-32697.38	10374.95	-3.15	0.01
Desig-DM	-20936.91	9525.18	-2.20	0.04
R Square	0.77			
Adjusted R Square	0.69			

**Table 9: Model for the Variable Pay of 41 Managers with Higher Qualifications**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	41425.60	16766.98	2.47	0.02
KR	11721.30	4699.77	2.49	0.02
Rating 2011	6686.12	2855.91	2.34	0.03
Total Exp	2113.05	757.75	2.79	0.01
Desig-AM	-48129.19	7709.02	-6.24	0.00
Desig-DM	-32255.27	7445.55	-4.33	0.00
R Square	0.75			
Adjusted R Square	0.71			

It emerged that being a key resource does not impact the variable pay planned for diploma holders, but it impacts the variable pay for others. This again validates our inference that it might be because of the difference between the bargaining powers of two categories of employees because of their differential demand in the external market. One can only conjecture that key resources among diploma employees might have gained very critical but very company specific knowledge and skill (more operational and supervisory), which might be less transferable. On the other hand key resources among non- diploma holders might have gained more general managerial competence apart from technical which are more easily transferable in external market, and hence the higher bargaining power. Average past rating is important for diploma holders, but not for others. Possibly the impact of average past rating is transferred through fixed pay increase for diploma holders, as the correlation between average past rating and fixed pay for diploma holders is 0.45, and significant (p-value = 0.04). This conjecture gets further supported when we examine the correlation between average past rating and fixed pay for non-diploma holders. This correlation is small (0.11) and insignificant (p-value = 0.54). Hence if average past rating indeed gets reflected in fixed pay, it does not seem to be happening for non-diploma holders.

## CONCLUSIONS

Our purpose in this paper was to look at compensation data of a unit and explain the variation. We worked with the variables available and derived the best models for overall as well as planned variable compensation. We dubbed a model as the best when it made sense both statistically as well as theoretically. Our approach was exploratory; we realized on several occasions that explaining a slice of reality completely was extremely difficult. When we shared our analysis with Rohit, here is what he had to say:

*I have gone through these findings carefully. The analysis findings do give us clue and input in looking at our compensation data. These actually are pretty fresh and different perspectives, which probably we never looked at them this way.*

As we discussed the observation that the planned variable pay mentioned in data does not seem to conform to their stated scheme of determining planned variable compensation, here is what he stated:

*“...over a period of time, 10% of the basic or 50,000 formulae may not hold water as every year the person will get some increase in the variable pay and that quantum of increase would be dependent on the performance. (Hence) even if two persons started with the same variable pay two years back, now two years later, they would have different planned variable pay if their performance ratings have been different.”*

Overall, the results we obtained conforms to theoretical ideas partially, and also points out some counterintuitive results. We suspect that the actual reality of compensation might be fully explained only if we go beyond the variables at our disposal. We have data on most of these 62 people for next year. We also have data of some other units of HTL. The variables available in these two datasets are likely to allow us to build on our conclusions here, and to test the same conclusions or gain some new insights. At the same time, we need to know the data better. For example, the market value of a BE/B.Tech or an MBA from some colleges is much better as compared to the same degrees obtained from many other colleges. Getting in these details might help us refine our understanding. We plan to do this in our future work.

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