

A Non Parametric Study of a Voluntary Separation Scheme (Vss) in an Iranian Organization

MAJID SERPOOSH

School of Management and Enterprise
University of Southern Queensland (USQ)
Australia

HAIDER ALI MALIK

Graduate School of Business
National University of Malaysia (UKM-Bangi)
Malaysia

GHAZALA HAIDER

Graduate Business School
University Tenaga National (UNITEN-Putrajaya)
Malaysia

Abstract:

One of the major challenges of business leadership in this millennium is to manage continued improvement in a competitive position. In order to stay competitive, companies are trying to become more “mean and lean”. To achieve this, many major corporations have adopted the “Downsizing and Rightsizing” strategy. Voluntary Separation Scheme (VSS) has been a global phenomenon since the 1980’s and is common particularly in larger companies. In this study, the reaction to the VSS program involving the employees of a government agency embracing privatization was studied, specifically the influence of the basic needs and compensation’s power on the choice of acceptance and non-acceptance of VSS. The results showed that social needs had an influence on the acceptance and the non-acceptance of VSS, which it shows that men have selected the VSS due to the social need factor more than women. Moreover the test shows that there is no evidence to show the negative association or negative relationship between salary and intention to leave. In other words, there is no significant correlation between salary and acceptance of

VSS and these two variables are significantly independent.

Key words: Voluntary separation scheme, non parametric studies in management, downsizing, employee turnover, HRM, privatization, intentions to leave.

Introduction

Continuous improvement has been a hot topic for companies for a long time. Companies try to implement different types of strategies in order to achieve sustainable competitive advantage and above average returns (Hitt et al. 2007). To achieve this goal, many organizations followed “downsizing and Rightsizing” strategies (Jantan and Krishnan 2006). These authors point out that Voluntary Separation Scheme, also referred as Voluntary Separation Schedule (VSS), has been commonly used since 1980’s by several companies. In their studies, Jantan and Krishnan (2006) pursued two important purposes:

1. The influence of individuals’ basic needs and referent power on the choice of acceptance and non-acceptance of VSS
2. To evaluate the success or failure of the VSS from the workers perspective in particular, whether their decision met their needs

Laid off, made redundant, retrenched, delivered, planned retrenchment, optional resignation packages and voluntary separation scheme (VSS) are all fancy words to take away the negative effect of an employee’s most dreaded fear of hearing those three magic words ‘ You are fired’.

Workforce reductions can range from being forceful in nature (retrenchment) to milder approaches such as resignation incentives and job sharing. However, generally they are classified into three forms of workforce reduction by US government (State of Washington Employee guideline, 2007) and these are:

- Voluntary Early Retirement (VER) in which employees nearing the age of retirement are offered incentives to retire,
- Involuntary Separation in which positions are eliminated, forcing employees to depart at the company's discretion,
- Voluntary separation scheme (VSS) in which employees of any age or level can be offered incentives to leave.

A report from the State of Washington Employee guideline-USA (2007, 1-8), defines VSS as "...a program which gives agencies the option to offer financial incentives to employees to voluntarily separate from state service, either through retirement or resignation." It adds: "as an alternative to separation, agencies also may offer employees financial incentives to voluntarily downshift".

There is very little literature on the subject of VSS. At present, the existing literature on VSS is limited and appears largely anecdotal. Bashar (2001) referred to VSS as a newly coined term for a Golden handshake, or an Early Retirement Incentive. It appears that an employee separation, be it Voluntary Separation Incentive (VSI), Voluntary Retirement Scheme (VRS), Golden Handshake or VSS, refers to a form of Incentive Early Retirement Program. Cross and Travaglione (2004) postulated that there are five important variables that contribute to the decision for acceptance of VSS/ VRS offers; these variables are:

- Employee commitment
- Perceived organizational support
- Job satisfaction
- Turnover Intention
- Absenteeism

Lee and Schmidt (2008) defined five variables and then, found the relationship between these variables and retirement intention and turnover intention. These five variables are as follows:

- Work centrality: The extent to which, work is central to the employee's life
- Commitment to leisure activities
- Effective organizational commitment
- Occupational commitment
- Job involvement

In summary, they concluded that the first two factors (work centrality and commitment to leisure activities) predict turnover intentions but they don't predict retirement intention. Another interesting research By Appelbaum et al. (2003) shows other determinant factors that affect the acceptance of early retirement offers by employees. Referring to the research done by (Paul and Townsend (1992), Kim and Feldman (1998), and Feldman (1994) cited by Appelbaum et al. 2003) Appelbaum et al, (2003) suggest the following factors:

- The years of continuous service in one organization. (+)
- Individuals married to working spouses (+)
- Individuals in poor health (+)
- Individuals' self-identity tied to the organization (-)
- Individuals having plans ahead of time for their eventual retirement (+)
- Individuals wages and future pension benefits (+)
- Individuals' uncertainty regarding macro-economic trends (-)
- Age (+)
- Individuals with high possibility of finding new jobs (+)
- Employees with minor children (-)
- Hard-driven, aggressive and impatient individuals (-)

Objective of This Study

The main objective of the paper is to look at the Social needs and salary that influenced the acceptance or rejection of VSS (Voluntary Separation Scheme) in this particular organization (Kayla) in Iran which has recently completed the exercise

(Voluntary Separation Scheme).

Background of the Organization

Iran economy, which has been one of the developing countries in Middle East, has seen some dramatic downturn in 1998, which in turn led to the collapse of the Iranian economy due to the impact of the East Asian Financial Crisis. Retrenchment then was the order of the day by a number of companies. The Iranian government changed its policies on retrenchment because of this economic crisis.

The organization used in this study was a company fully owned by the Ministry of Finance in Iran which is called "KAYLA". It is the first public sector run, integrated aluminum producer in the country with the history of more than 35 years of public sector management. In 1994, the management of the company then realized that the bottom line profit was very important. As a corporative company, it had to maintain its profitability since government funds would be curtailed.

Therefore, in meeting the challenges of the future, initiatives had to be taken to meet new standards, with customer focus being the priority. The management also realized that as a commercial entity, the company would face stiff competition in the market place. One issue that needed to be scrutinized is the excess staffing, i.e., the labor cost which consumed a large percentage of the operating expenditure. However, as a corporative entity, the company had to justify to the shareholder, the Ministry of Finance if there was a need to trim its staff strength. To do this, the management appointed a team of external consultants in 2005 to carry out the Business Process Re-Engineering Study (BPR). The main focus of the proposed review was the systematic analysis of the business processes of each SBU/CSU. The intention was not to conduct a highly sophisticated analysis to introduce the best practices, but to implement and apply the data that was available in a practical application towards some fairly tough decision-making

that needed co-ordination objectively across the company. The challenge was in the complexity of the work, as what was needed was to retain objectivity and determination to proceed until the reductions were achieved. The review of the business processes identified surplus jobs as one critical factor towards staying competitive. Therefore a mechanism, that released staff from employment and also supported the process review, was selected. Owing to restrictions imposed in the Corporatisation Agreement, the Voluntary Separation Scheme (VSS) was recommended as the preferred mode for this staff reduction exercise.

Literature Review & Hypothesis

Factors Affecting Acceptance or Rejection of Early Retirement Scheme

As we discussed in literature review earlier, a wide array of factors has been identified as predictors of early retirement decision. The first set contains the demographic status, health and income, which, are the traditional factors such as age, gender, health, employment tenure, income and benefits represents the first set of factors. The second set of factors includes expectation of future incentives, opportunities for part time work, current work productivity, status of the family and spouse employment (Feldman 1994 cited by Appelbaum et al. 2003).

With the introduction of incentives, early retirement programs like the VSS, there has been a fundamental shift in the early retirees' conceptualization of their personal needs, family, organizational and environmental factors that makes early retirement decisions much more complex. Feldman, 1994 cited by Appelbaum et al. 2003) proposed three significant elements that researchers should address, these are: (a) physiological well-being, (b) psychological well-being and (c) financial well-being. These are essentially the human needs as

propounded by Maslow. Thus, this research seeks to identify the influences of the five basic needs; namely Health needs (physiological), Social, Self-esteem and Self-actualization needs (psychological) and Security needs (financial) on the acceptance or rejection of the VSS. A focus group interview was conducted to gather some background information from some of the employees who had taken the VSS and also from some who did not accept the VSS prior to the development of the research model and the questionnaire. The interviews helped to narrow the focus of the research to the use of Maslow's Hierarchy of Needs as the basis of the study and thus we embarked on this research with that as the guide.

With the Maslow's Hierarchy of needs model in mind, the following section will discuss just the social needs and the compensation power in selecting the VSS program, therefore the related hypothesis will be as follows:

Social Needs

This included the need for leisure activities (Paul & Townsend, 1992 cited by Appelbaum, et, al 2003). The need to have more time with the family and involvement in community activities also seems to influence the acceptance of early retirement. So in this particular case study the first hypothesis is formulated as:

- ***Hypothesis One:*** *There is no significant difference between male and female to select the social needs as a reason to accept Voluntary separation scheme.*

Salary affect

Some researchers have found out that older workers with low salary and lower occupational status were less likely to retire early than workers with high salary. The second hypothesis is that:

- ***Hypothesis Two:*** *The employee's salary will be negatively related to the decision to accept Voluntary separation program*

Sample selection method

In this study, numbers of male and female samples have been randomly selected. To investigate that the occurrence of selected male and female samples were randomly selected, the third hypothesis is formulated as:

- ***Hypothesis Three:*** *The samples of population were randomly selected*

Research Methodology

Population, Sample and Sampling Method

The population in this study comprised of 20 individual workers, who have accepted the VSS. A total of 16 questionnaires were distributed by email to the employees of Kayla Who have accepted the VSS and currently are not working in Kayla anymore. Standardized questionnaires were used to collect all the required information for this study. The main objectives of the questionnaires were to identify the gender, the influence of social needs on their acceptance of VSS and the amount of salary which they had in Kayla. Respondent were given about 10 days to respond and complete the questionnaires. After 10 days from the date of the distribution of questionnaires by email, only 11 complete responses were received representing of response rate of 68.75%. In summary the background of these respondents is as follow:

- 6 males and 5 females
- Average age is 34 years old.
- Profile of the respondents is given in Table 1.

Measurement

Dependent and independent variables

The scale items used in the questionnaire were developed from the literature review and other relevant instruments. The dependent variable in this study was the respondent's choice of behavior, which was acceptance of VSS. The independent

variables consist of two main components: first were social needs and the second one was salary.

Data collection

To measure the social needs, the employees were asked to give 5-point scale to extent to which they agree or not on the factors which were asked on the questionnaire. (1= no influence on my decision to select VSS ... 5= the strongest influence to take the decision of selecting VSS)

Regarding the relationship of salary and their intention to select VSS, they were indirectly asked to mention their salary for our further analysis. Moreover, they were asked to give their intention to leave the organization which means the possibility of acceptance the VSS program at the time they were working on this company. For example if employee 1 rated 90% favorable intention to leave the company which is equal to 90% he is interested to take the VSS program and leave the company. The complete profile of their salary and other variables are shown in Appendix 2.

Method of Analysis and Hypothesis testing:

Since the sample size is relatively small (11 employees), the nonparametric statistic will be used to test to two hypothesis developed earlier. The tests given in table 1 below and all the relevant statistics required were adopted form Hollander and Wolfe (1999) for each of the hypotheses:

Hypotheses	Non-parametric tests used:
Hypothesis 1	Wilcoxon Rank Sum Test
Hypothesis 2	<ul style="list-style-type: none">▪ Kendall▪ Spearman▪ Theil
Hypothesis 3	Runs Test

Table 1- Hypotheses and relevant tests

Empirical results

Wilcoxon Rank Sum Test

Hypothesis one: *There is no significant difference between male and female to select the social needs as a reason to accept Voluntary separation scheme.*

This hypothesis shows that the social needs are an influential factor and effective variable for both male and female to select VSS. In this hypothesis we wish to investigate that whether the gender have treatment effect on selecting VSS or not.

Hypothesis

H0: There is no significant difference between male and female to select the social needs as a reason to accept Voluntary separation scheme. (H0: $\Delta=0$)

H1: There is more intention to take the VSS opportunity among men rather women. (H1: $\Delta>0$)

Rejection rule

Reject H_0 if $W \geq W_a$ (From table A-6, $m = 6$, $n = 5$, $\alpha = .041 \rightarrow W_a = 40$)

Assumptions

Let m = the number of male employees and f = the number of female employees

$$N = n + m = 6 + 5 = 11$$

Procedure

To compute the Wilcoxon two sample rank sum statistic W , we should order the combined samples of $N=m+n$ X-values and Y-values from least to greatest. In table 2 the data has been ordered and ranked then the w is calculated as follow:

Male m=6	Rank	Female n=5	Rank
1.83	1	2.87	5
2.95	7	2.91	6
2.59	3	2.67	4
3.46	8	4.8	11
3.82	9	2.02	2

4	10		
W1= 38		W2= 28	

Table 2 Data used

Critical Value of W:

$$W = \sum S_j = 5 + 6 + 4 + 11 + 2 = 28$$

We have set $\alpha = 0.041$, $m=6$, $n=5 \rightarrow W_{\alpha} = 40$

Rejection rule: Reject null hypothesis if $W \geq W_{\alpha}$

Conclusion

Since $W = 28 > 20$, then we reject the null hypothesis which means there is significant *difference between male and female to select the social needs as a reason to accept Voluntary separation scheme. In other words, the intention to take the VSS program is more among men rather than women.*

Hypothesis Two: The employee’s salary will be negatively related to the decision to accept Voluntary separation program. For testing the second Hypothesis we are using three different methods to see whether the null hypothesis will be supported or rejected in favor of the alternative hypothesis.

Kendall test

Kendall Test is a distribution free test for independence based on signs. We use this test to decide whether or not the two variables (Salary and VSS acceptance) are independent and if not independent, to assess both the type and degree of dependency that exist between them. The data obtained 11 bivariate observations (The salary and intention to leave). Table 3 shows the data of salary and percentage to intention of leave of each individual.

Observation	Salary (\$)	Intention to leave (Percentage)
1	600	90
2	1400	65

3	830	75
4	650	70
5	1600	80
6	1500	40
7	1450	100
8	840	75
9	1500	30
10	700	55
11	850	60

Table 3 Data Used

Assumption:

The 11 bivariate observations (Salary1, intention to leave1), ..., (Salary11, intention to leave11), are a random sample from a continuous bivariate population. They are mutually independence and identically distributed according to some continuous bivariate population.

Procedure:

In accordance with the second hypothesis, applying the on-sided lower-tail test, the hypothesis to be tested:

- H_0 : The employee's salary and the decision to accept Voluntary separation program are independent.
- H_1 : The employee's salary will be negatively related to the decision to accept Voluntary separation program

At the a-level of significance, reject H_0 if $K \leq -K_a$, otherwise, do not reject. Table 4 below shows the computation of Kendall sample correlation statistic K:

$i \setminus j$	1	2	3	4	5	6	7	8	9	10
2	-1	-	-	-	-	-	-	-	-	-
3	-1	-1	-	-	-	-	-	-	-	-
4	-1	-1	+1	-	-	-	-	-	-	-
5	-1	+1	+1	+1	-	-	-	-	-	-
6	-1	-1	-1	-1	+1	-	-	-	-	-
7	-1	+1	+1	+1	-1	-1	-	-	-	-
8	+1	-1	0	+1	+1	-1	+1	-	-	-
9	-1	-1	-1	-1	+1	0	-1	-1	-	-

10	-1	+1	+1	-1	+1	-1	+1	+1	-1	-
11	-1	+1	-1	-1	+1	-1	+1	-1	-1	+1

Table 4 Calculations

Summing the Positive and negative values in table 3 above:

$$K = \sum Q = -9$$

From Table A30, with $n = 11$ at significant level $\alpha = 0.043 \rightarrow -K_{\alpha} = -23$

Conclusion

Reject the null hypothesis if $k < -k_{\alpha}$. In this test since $K = -9 \geq -K_{\alpha} = -23$ then we do not reject H_0 at 0.043 level of significance. It means there is no significant evidence to show that the salary will be negatively related to the level of acceptance the VSS program. In other words the null hypothesis which was: the employee’s salary and the decision to accept Voluntary separation program are independent will be supported.

Spearman

This test is a distribution free test for independence based on ranks (Spearman) with the same assumption in Kendall.

Procedure:

In accordance with the second hypothesis, applying the one sided lower tail test, the hypothesis to be tested is:

- H_0 : The employee’s salary and the decision to accept Voluntary separation program are independent.
- H_1 : The employee’s salary and the decision to accept Voluntary separation program are negatively associated.

At the a level of significance, reject H_0 if $r_s \leq -r_{s,\alpha}$, otherwise do not reject. Using the data in appendix A, letting $X =$ amount of salary and $Y =$ Intention to leave the company (Take VSS program). Table 5 in next page shows the computation of Spearman statistic r_s :

i	X_i	R_i	Y_i	S_i	$D_i = S_i + R_i$	$D_i * D_i$
1	600	1	0.90	10	9	81
2	1400	7	0.65	5	-2	4

3	830	4	0.75	7.5	3.5	12.25
4	650	2	0.70	6	4	16
5	1600	11	0.80	9	-2	4
6	1500	9.5	0.40	2	-7.5	56.25
7	1450	8	0.100	11	3	9
8	840	5	0.75	7.5	2.5	6.25
9	1500	9.5	0.30	1	-8.5	72.25
10	700	3	0.55	3	0	0
11	850	6	0.60	4	-2	4
				$\sum(D_i * D_i) = 265$		

Table 5 calculations

Therefore:

- $rs = 1 - (6 \sum Di / (n(n^2 - 1)))$
- $rs = 1 - (6 * 265) / 11(11 * 11 - 1) = -0.204$

From Table A.31 with $n=11$, considering the significance level $\alpha = 0.05$ we have $-rs, \alpha = -0,536$.

Conclusion:

Since rs is greater than $-rs, \alpha$, *H0 do not rejected* at 0.05 level of significance. Therefore it can be concluded that there is no significant evidence to show that the salary and intention to leave are negatively associated. Thus the degree of dependency is not carried out.

Theil

A distribution-free test for the slope of the regression line (Theil) was carried out to see the effect of salary on acceptance of VSS program.

Assumption: $Y = \alpha + \beta X + e, i=1, 2, 3 \dots 11$

Procedure:

In this case the slope parameter β represents the rate of the salary per unit change in intention to leave.

Applying the one side lower tail test, the hypothesis to be tested:

- $H0: \beta = 0$
- $H1 = \beta < 0$

<i>i</i>	salary	Intention to leave(VSS Acceptance)
1	600	0.90
2	650	0.70
3	700	0.55
4	830	0.75
5	840	0.75
6	850	0.60
7	1400	0.65
8	1450	0.100
9	1500	0.30
10	1500	0.40
11	1600	0.80

Table 6 Data Used

At the a level of significance reject H_0 if $C \leq -ka$, otherwise do not reject. Using the data in table5 above, table 7 next page shows the computation of Theil statistic C.

(i,j)	$(D_j - D_i)$	$C(D_j - D_i)$	(i,j)	$(D_j - D_i)$	$C(D_j - D_i)$
(1,2)	-20	-1	(4,7)	-10	-1
(1,3)	-35	-1	(4,8)	25	1
(1,4)	-15	-1	(4,9)	-45	-1
(1,5)	-15	-1	(4,10)	-35	-1
(1,6)	-30	-1	(4,11)	15	1
(1,7)	-25	-1	(5,6)	-15	-1
(1,8)	10	1	(5,7)	-10	-1
(1,9)	-60	-1	(5,8)	25	1
(1,10)	-50	-1	(5,9)	-45	-1
(1,11)	-10	-1	(5,10)	-35	-1
(2,3)	-15	-1	(5,11)	15	1
(2,4)	5	1	(6,7)	5	1
(2,5)	5	1	(6,8)	40	1
(2,6)	-10	-1	(6,9)	-30	-1
(2,7)	-5	-1	(6,10)	-20	-1
(2,8)	30	1	(6,11)	20	1
(2,9)	-40	-1	(7,8)	35	1
(2,10)	-30	-1	(7,9)	-35	-1
(2,11)	10	1	(7,10)	-25	-1

(3,4)	20	1	(7,11)	15	1
(3,5)	20	1	(8,9)	-70	-1
(3,6)	5	1	(8,10)	-60	-1
(3,7)	10	1	(8,11)	-20	-1
(3,8)	45	1	(9,10)	10	1
(3,9)	-25	-1	(9,11)	50	1
(3,10)	-15	-1	(10,11)	40	1
(3,11)	25	1	C = -8		
(4,5)	0	0			
(4,6)	-15	-1			

Table 7 calculations

From Table above the value of $C = \sum \sum C (D_j - D_i) = 23 - 31 = -8$

Conclusion

From table A.30, with $n=11$, at $\alpha = 0.043 \rightarrow -K_\alpha = -23$, since C is more than $-K_\alpha$ therefore we do not reject the null hypothesis at 0.043 level of significance. Thus we can conclude there is no significant evidence that the slope is negative.

Summary of Second Hypothesis

From the three test above, (1: Kendall, 2: Spearman, 3: Theil), it can be concluded that the second hypothesis is not supported. Therefore suggests that, there is no significant relationship between the salary and intention to leave the company (Acceptance of VSS)

Hypothesis 3: Runs Test

We wish to investigate that the following occurrence of selected male and female samples were randomly selected.

F M M F F M F M F M M

- $R=8$
- $n1=5$
- $n2=6$

$$E(R) = \{2n1n2 / (n1+n2)\} + 1 = \{2*5*5 / (11)\} + 1 = 6.454$$

$$E(R) = 6.454$$

$$\sigma = \sqrt{[2n1n2 (2n1n2 - n1 - n2)] / (n1+n2) * (n1+n2) * (n1+n2 - 1)}$$

$$\sigma = \sqrt{2.43} = 1.56$$

Therefore we have:

$$Z = (R - E(R)) / \text{Var}(R) = (8-6.454)/1.56 = 0.99$$

From Z table for $\alpha = 0.05$ we have $Z_{\alpha/2} = 1.96$, since $Z < Z_{\alpha/2}$ therefore we do not reject the null hypothesis. As a conclusion we can say that the data is randomly selected.

Conclusion and Implications

There are several methods by which companies may reduce the likelihood that they will have to lay off employees. Several of these approaches need further explanation. According to what we have discussed in this paper, there are a number of strategies for companies to pursue in order to reduce their operating costs and gain competitive advantage. These include both short-range and long-range approaches. To do so, companies can reduce their workforces (there are many other options for companies in such situation but, however, the main issue of this assignment is about Voluntary Separation and Voluntary Retirement Schedules.) by pursuing different methods, either by force or voluntarily. As it's mentioned earlier, voluntary separation schedules is a popular alternative for companies to implement. However, there are varieties of factors in this regard. For instance, management should ask several questions regarding this decision like:

- Is it necessary to reduce the number of employees?
- Is there any other possible option to keep our employees?
- Will employees "Voluntarily" accept the offers and leave the job or there are some forcing factors behind it?
- How much cost should the company incur in order to lose the employees (how much money? Asset? Knowledge? Etc.)?
- Who should leave and who should stay?
- Who will leave and who may stay?

- What if there is more (or less) number of employees who intend to leave?
- How can we ensure that the number of acceptors are the near to our estimation?
- Will the company be benefited after these employees leave the organization in short-term? What about in long-term?
- Will employees be satisfied if they accept the offer or not?

Asking such questions help managers understand the concept as well as helping them think deeper about the separation program. In other words, managers will become more ready to plan, organize, communicate, implement and control the process of employees' separation (or retention) if these questions are asked and answered well. However, generally speaking, it is suggested in most articles and researches that losing employees (either by forcing them to leave or inducing them by offering lucrative packages) may cause many long-term problems for management and organizations and therefore, this issue should be well defined, planned and analyzed before deciding to implement it.

There are so many factors affecting Voluntary Separation Schemes and Voluntary Retirement Schemes. Some studies focus on the planning or implementation process, some see the issue from the organizational managers (or organization) perspective and some others see it from employees' perspectives. Some articles also talk about the general issue and some others talk about the short-term and long-term consequences of implementing such programs. Concluding such topics needs very deep review of literature as well as enough theoretical and practical experience about it. This paper was just a simple gathering of basic information about the concepts of VSS and VRS. In addition, in order to understand the issues better, two cases were brought, summarized, and discussed. To sum up, it should be noted that

there is still variety of rooms regarding VSS and VRS and researchers and practitioners can see these concepts from different perspectives and in new contexts.

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