

Determinants of job satisfaction of Sri Lankan seafarers and tendency of selecting shore based jobs

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Abstract— Shipping as an integrated component in larger goods movement system and is a major traditional industry which has been changed rapidly with globalisation. So job satisfaction of seafarers is considered as an important factor. This study is aimed to find the factors that affect the job satisfaction of Sri Lankan seafarers and to determine the existence of tendency in doing shore based jobs by Sri Lankan seafarers. Due to the unavailability of the secondary data sources, primary data gathering has been carried out in doing this study using stratified sampling methods. Descriptive analysis has been carried out to check the relationship between the response variable and other explanatory variables. Due to the availability of collinearity between explanatory variables and as those variables are very much related to the job satisfaction, factor analysis has been carried out using data reduction techniques. To check the reliability of extracted factors, reliability analysis has been carried out. Based on the reliable factors hypothesis testing has been carried out for ordinal data using Kruskal Wallis test. When considering tendency in moving to shore based jobs by Sri Lankan seafarers, 79% of seafarers have tendency to move shore based jobs after some years of practicing seafaring career. Tendency of moving shore based jobs is highly depending on the civil status and living sector of seafarers.

Keywords— Job Satisfaction, Factor analysis, Hypothesis testing

I. INTRODUCTION

Nowadays the shipping industry can be characterised as the most globalising and largely developing international industry with modern technology and newly introduced labour regulations (ILO-MLC 2006). The transport and logistics sector in the changing world requirements solely depend on this major industry.

“Shipping is perhaps the most international of all the world's great industries and one of the most dangerous.” (International Maritime Organization [IMO], 2002a)

The Ocean base transportation can be taken in to four links; the crew, the ship, the cargo she carried and the environment. This is an interconnected chain where it's going to be affected if any link breaks. The major link in this chain is the crew member. The largest man made steel structure is operating by the mankind to cater to the rapidly changing demand and supply of the world economy. The main power source to the system comes out from them, if the seafarers are not in a stable position; the decision making will directly impact to the safety of person and the ship and cargo hence the Environment where she moves. The Ocean base supply chain mainly driven by human factor in shipping industry.

For several reasons it is important to understand the level of job satisfaction of seafarers. First, seafarers with a high level of job satisfaction are more likely to ensure effective sea transportation than those with low levels of job satisfaction. Second, the job satisfaction of the seafarers is a crucial factor not only because it helps secure the effectiveness of ocean-based supply chain but also it helps both the present and future seafarers, the ship owners and will enhance the image of the shipping industry, all of which in turn will contribute towards attracting motivated and capable people to the seafaring profession. Third, satisfied seafarers are continuously involved in their seafaring career and will strive to meet the demands of rapidly advancing technology by engaging in further studies and training. It is important to emphasize that the industry requires satisfied, highly qualified and high calibre seafarers capable of adapting to change. This study is aimed to identify the factors affecting job satisfaction of Sri Lankan seafarers and their tendency in moving shore-based jobs.

II LITERATURE REVIEW

Helmreich (1981) et al. has carried out a research on Motivation, Organisation and Satisfaction abroad ship. This study was based on motivational characteristics of licensed and unlicensed VLCC (Very Large Crude Carriers) crewmembers and the way these motivational characteristics combined with organisational and environmental factors which determine the job

satisfaction and life satisfaction of crew members. Secondary data analysis has been carried out based on the survey conducted among US flag VLCC fleets of three major oil companies. The overall life satisfaction, job satisfaction, satisfaction about the salary paid to respondents, physical environments and other work related attitudes has been taken into consideration in doing the study.

According to Helmreich (1981) job satisfaction is a strong determinant of overall life satisfaction. Shipboard job evaluation is influenced by several factors, most significantly the utilization of skills and perceived challenge of the work. It is important to note that satisfaction with pay is only minimally related to job satisfaction and that the habitability of the environment plays a relatively minor role in determining evaluations of work.

III METHODOLOGY

Primary data gathering has been carried out during the research. In deciding the sampling frame it has been found that, list of Sri Lankan seafarers has not been maintained by the authorities. Due to the unavailability of such list of seafarers, temporary list of Sri Lankan seafarers has been generated using the information available at the some of the maritime training institutions in Sri Lanka.

Target population of Sri Lankan seafarers has been subdivided into nine sub categories, namely Master, Chief Officer, Second Officer, Third Officer, Chief Engineer, Second Engineer, Third Engineer, Fourth Engineer, Senior Cadet. Catering staff, seaman and motorman have not been taken into consideration in data collection as only officers have been considered in the research.

In data collection process 400 seafarers has been taken into consideration. Out of 400 seafarers only 329 seafarers has been responded. It is 82%. Though 338 questionnaires had been received nine questionnaires has been rejected in data validation process. 340 seafarers have been selected for the data collection process. Only 329 seafarers responded the questionnaire. Self-administered questionnaire has been used in data collection process.

This research is mainly based on the response variable; Job satisfaction of the seafarers. Descriptive analysis has been carried out to check the relationship between the response variable and other explanatory variables. Due to the availability of collinearity between explanatory variables and as those variables are very much related to the job satisfaction, factor analysis has been carried out

using data reduction techniques. To check the reliability of extracted factors, reliability analysis has been carried out. Based on the reliable factors hypothesis testing has been carried out for ordinal data using Kruskal Wallis test.

When considering the tendency in moving to shore based jobs by Sri Lankan seafarers, descriptive analysis has been carried out. Chi square test for association has been carried out to check the relationship between moving to shore based jobs and demographic variables.

IV ANALYSIS AND INTERPRETATIONS

In analysing job satisfaction of Sri Lankan seafarers, 400 seafarers have been selected. Questionnaire has been used in primary data collection process. Out of 400 seafarers 329 seafarers responded to the questionnaire, it is 82% as a percentage. Face-to-face method, email questionnaire methods are being used.

The majority of the sample are senior cadets which 26.2 as a percentage. There were considerable number of third officers, second officers and third engineers in the sample. Lowest representation of the sample is second engineers, which is approximately two percent. This sample consists of male gender only and most of the second engineers are in sailing category. Also, there are only few females involved in seafaring career in Sri Lanka. Age of the seafarer is varied from 21 years to 64 years. Highest number of seafarers is 25 years old, which is approximately 11% of the sample. As the majority of the sample belong to the senior cadet job category, this fact can be further interpreted. When considering the living sector of the seafarers under the study, 55% of seafarers are living in semi urban sector. Approximately 33% of seafarers are living in the urban sector. Ten percent of seafarers are from rural sector. It is worthwhile to note that sample consists of four seafarers who are living in foreign countries. More than 75% of seafarers started their seafaring career as a cadet. Approximately twelve percent of them started it as deck hand. Few seafarers started their seafaring career as a motorman and oiler.

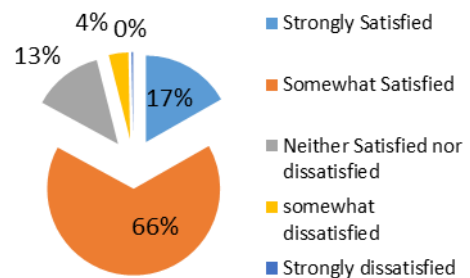


Figure 1. Job satisfaction of Sri Lankan seafarers

According to the above figure 66% seafarers are somewhat satisfied about their seafaring career. 17% seafarers are strongly satisfied about their job. None of the seafarers are strongly dissatisfied about their seafaring career. Only four percent of seafarers are dissatisfied about their career.

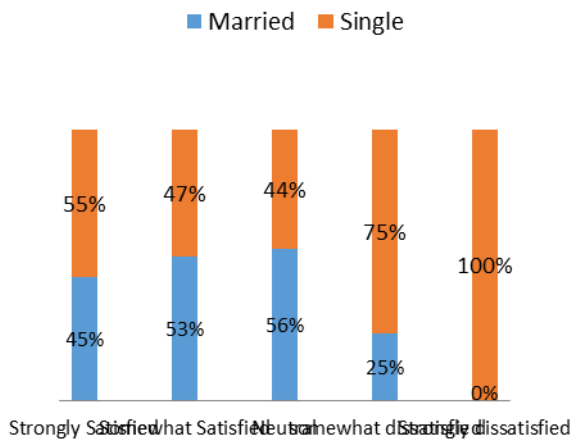


Figure 2. Distribution of job satisfaction by civil status

When considering the civil status, there is no high deviation in 'strongly satisfied', 'somewhat satisfied' and 'neutral' groups. But there exist a considerable deviation in 'somewhat dissatisfied' group and the 'strongly dissatisfied' groups. One fourth of somewhat dissatisfied seafarers is married. Though the figure stated that all most all seafarers strongly dissatisfied about their jobs are unmarried, this fact cannot be considered as a significant, as only one seafarer is strongly dissatisfied about the job.

Among the seafarers those who strongly agree the availability of job description during their seafaring career; approximately 90% are strongly satisfied about their job. Among seafarers somewhat agree the availability of the job description; approximately 80% are satisfied about the seafaring career. Approximately 85% of seafarers those who have strongly agree about the availability of clear job responsibilities are satisfied about the seafaring career. It is worthwhile to note that, only few seafarers are disagreed about the availability of clear job responsibilities in seafaring career.

Despite the job satisfaction 75% of seafarers are satisfied about their pay at seafaring career. Almost all seafarers those who very satisfied about their career are satisfied about their pay at seafaring career. 75% of seafarers those who somewhat satisfied about their career are satisfied about their pay.

Majority of seafarers (nearly 90%) are satisfied about the level of disciplines maintained on board. This may be due to discipline based training that they gain during their training programmes. 95% of seafarers with high job satisfaction are very happy about the level of disciplines maintained onboard. Though almost all seafarers with very low job satisfaction are very satisfied about the level of disciplines they maintained on board it can be ignored due to less sample size which is not representative.

Only 45% of seafarers stated that their job is secure. It may be due to the contract based jobs that they have and not in a permanent basis. Among seafarers with very high job satisfaction, approximately 80% of them stated that their seafaring career is secure. Among the seafarers with somewhat dissatisfied about their job, 50% stated that their job is not secure.

More than 80% of seafarers believe that they have opportunities for further studies in their career. As so many training programmes available time by time with update made to the regulations and so on, even senior seafarers are also supposed to get their knowledge updated time by time. Junior officers have so many opportunities for further studies, where they can continue study programme balancing their sea time. Almost all seafarers with very high job satisfaction stated that they have opportunities for further studies. Among seafarers with somewhat low job satisfaction, approximately 65% stated that they have opportunities for further studies.

More than 85% of seafarers are satisfied about their living condition. As seafarers are relatively well paid they may be able to make their living condition in a satisfactory level due to their career. Almost all seafarers with high job satisfaction are satisfied about their living condition. More than 85% of seafarers in somewhat satisfied group are satisfied about their living condition. Only three (0.9% as a percentage) seafarers are dissatisfied about their living condition. When considering the current position of the three seafarers two of them are third officers and one seafarer is a senior cadet. Their dissatisfaction may be due to relatively low benefits that they gain.

Approximately 70% seafarers stated that job specific training programmes are offered to them by the shipping companies. Among seafarers with very high job satisfaction more than 80% of them stated that job specific training programmes are offered to them by shipping companies. Among seafarers somewhat dissatisfied about their job, 50% agreed that required training programmes are offered by the shipping

companies. Though almost all seafarers with very low job satisfaction stated that shipping companies are not offering required training programmes this fact cannot be considered as an important factor due to low response rate.

Less than 20% of seafarers are stated that they are entitled with long term welfare facilities such as EPF and ETF. More than 70% of them stated that they are not entitled with long term welfare facilities. Seafarers with very high job satisfaction approximately 60% stated that they are not entitled with long term welfare facilities such as EPF and ETF.

More than 90% of seafarers are happy about the safety maintained on board. Almost all seafarers with very high job satisfaction are satisfied about the safety maintained onboard. Only one seafarer is very dissatisfied about the safety maintained on board. He is a third officer. Approximately 75% seafarers with relatively low job satisfaction are happy about the safety maintained on board. This may be due to the regulations. Due to regulations and their updates shipping companies cannot compromise the safety standards maintained onboard.

Approximately 80% of seafarers are entitled with insurance coverage for the damages that they caused on board. Only 6% of seafarers (21 seafarers) stated that they not entitled with insurance coverage for the damages caused on board. Most of this group consists of fourth engineers (04), third engineers (04) and senior cadets (05). It is worthwhile to note that this group consists of three chief officers. But these three chief officers are somewhat satisfied about the seafaring career and all three chief officers have more than ten years of experiences in seafaring career.

75% seafarers agreed that required communication facilities are available to them onboard. Approximately 15% of seafarers are not satisfied about the communication facilities available to them on board. More than 90% of seafarers with high job satisfaction are satisfied about the communication facilities available to them on board. This may be very crucial factor job satisfaction as seafarers have no any other way to reach their family members when they are on board. Communication facilities available to them during their sea time may be increased rapidly due to new technologies such as emails and Internet. Maritime labour convention is also covering communication for seafarers. In the guidelines in B3.1.11 the convention states that "consideration" should be given to include "reasonable access to ship to shore telephone communications, and email and internet facilities, where

available, with any charges for the use of these services being reasonable in amount" (MLC - 2006).

80% of seafarers are satisfied about the recreational facilities available to them onboard. More than 90% of seafarers with very high job satisfaction are satisfied about the available recreational facilities on board. According to MLC (2006) ship-owners should pay attention in providing smoking rooms, sport equipment, table game and deck games free of charge in addition to book cease, facilities for reading and available of open space for seafarers when they are off duty.

Approximately 80% of seafarers stated that they can balance their personal life and the career. Only 08 seafarers (2.4%) are strongly disagreed about the balancing their personal life and seafaring career. Majority of them are third officers and senior cadets. Almost all seafarers with very high job satisfaction are satisfied about balancing their personal life and the seafaring career.

Approximately 60% of seafarers stated that they have resting time according to the IMO regulations. 26 seafarers (08%) are strongly disagreed on the resting time available to them. But among seafarers with high job satisfaction, more than 80% are agreed the available of resting time according to the IMO regulations.

It is worthwhile to note that approximately 80% of seafarers are hoping to go for a shore based job after some years of the seafaring careers. Approximately 60% seafarers with very high job satisfaction have tendency to go for shore based job after some years of practicing the seafaring career. According to this fact, there may be a tendency in moving to shore based jobs by seafarers which will be worthwhile to study further.

Approximately 79% Sri Lankan seafarers have tendency to moving to shore based jobs after some years of practicing their seafaring career.

Approximately 80% of married seafarers are hoping to move shore based jobs after some years of practicing their seafaring career. Tendency of moving shore based jobs by married seafarers are higher than that of unmarried seafarers. However it is worthwhile to note that approximately 40% of unmarried seafarers have strong tendency in moving shore based jobs.

When considering the current position of seafarers Masters and chief engineers are more likely to go for shore based jobs when compared to other positions. This may be due to the relatively higher job opportunities

available for senior positions in seafaring career. Second engineers, third engineers and third officers are less likely to be moving shore based jobs when compared to other designations. This may be due to the relatively low job opportunities available those ranks and the low salary rates on those available jobs.

Table 1. Distribution of moving shore based jobs

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	142	43.2	43.7	43.7
Somewhat agree	115	35.0	35.4	79.1
Neither agree nor disagree	43	13.1	13.2	92.3
somewhat disagree	11	3.3	3.4	95.7
Strongly Disagree	14	4.3	4.3	100.0
Total	325	98.8	100.0	
Missing System	4	1.2		
Total	329	100.0		

Seafarers with high salary scales are more likely to be moving shore based jobs. Seafarers in senior ranks may be belonging to the high salary scales. Due to the higher number of shore based jobs available to them with relatively good salary schemes they are more likely to be moving shore based jobs when compared to other salary scales.

In order to explore the presence of different components of job satisfaction, a Factor analysis was conducted using the responses obtained for various items such as pay, perks, etc.,

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.852
Bartlett's Test of Sphericity	Approx. Chi-Square	2.093E3
	df	300
	Sig.	.000

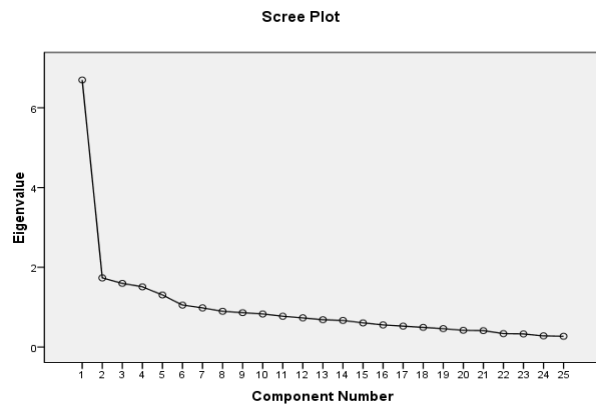
Kaiser-Meyer-Olkin (KMO) and Bartlett's test is used to measure the strength of the relationship among variables. KMO test statistic measure the sample adequacy. As KMO test statistic is greater than 0.5, it can

be concluded that sampling is adequate for a satisfactory factor analysis to proceed. Following hypothesis has been checked during Bartlett's test

Ho: correlation matrix is an identity matrix.

H1: correlation matrix is not an identity matrix.

As p-value of the Bartlett's test is 0.000, null hypothesis is not accepted. It can be concluded that, correlation matrix is not an identity matrix which further supports the strength of the relationship among variables used in factor analysis.



Scree plot helps to determine how many factors to retain. It can be seen that the curve begins to flatten between factor six and factor seven. So, only six factors have been retained.

Job satisfaction of Sri Lankan seafarers can be mainly categorized into six significant factors; Safety and protection, Compliance with regulations and working conditions, Freedom and work-life balance, Salary and disciplines, Job clarity and resources and other benefits. According to the reliability analysis Salary and disciplines factor and resources and other benefits factor has been ignored as they are not reliable.

Table 2. Hypothesis testing test results of Factor 01 – Safety and Protection

Variable Name	Kruskal Wallis Test Statistics	P- Value
8. Civil Status	3.229	0.072
9. Living Sector	2.955	0.565
10. First Job	12.173	0.016
11. First Monthly Salary	3.222	0.521
12. Starting age	1.975	0.372
13. Current Position	12.773	0.120

According to the test results, starting job of seafarers is highly significant (under 5%) when considering safety and protection experienced by the seafarers. Safety and protection experienced by seafarers is different for different categories (deck hand, cadet, oiler, and motorman) under the first job variable.

Table 3. Hypothesis testing test results of Factor 02 – Compliance with regulations and working conditions

Variable Name	Kruskal Wallis Test Statistics	P- Value
5. Civil Status	0.443	0.506
6. Living Sector	9.109	0.058
7. First Job	30880	0.423
8. First Monthly Salary	1.452	0.835
9. Starting age	5.583	0.061
10. Current Position	27.771	0.001

Current position of the seafarers is highly significant (under 1%) when considering the Compliance with regulations and working conditions faced by seafarers. Living sector variable is significant under 5% level and starting age is significant under 10% level of significant.

Table 4. Hypothesis testing test results of Factor 03 – freedom and work-life balance

Variable Name	Kruskal Wallis Test Statistics	P- Value
1. Civil Status	3.978	0.046
2. Living Sector	5.296	0.258
3. First Job	28.020	0.000
4. First Monthly Salary	6.245	0.182
5. Starting age	1.115	0.573
6. Current Position	20.041	0.010

First job of the seafarers and current position variables are highly significant (under 1% level) when considering the freedom and work-life balance of seafarers. Civil status is significant under 5% level.

Table 5. Hypothesis testing test results for factor 05 – job clarity and resources

Variable Name	Kruskal Wallis Test Statistics	P- Value
1. Civil Status	1.267	0.260
2. Living Sector	4.991	0.288

3. First Job	7.490	0.112
4. First Monthly Salary	0.739	0.946
5. Starting age	2.602	0.272
6. Current Position	20.187	0.010

Current position is highly significant (under 1% level) when considering job clarity and resources available to seafarers on board

Table 6. Hypothesis testing for tendency in moving shore based jobs

Variable Name	Test statistic value	p-value
Civil status	10.535	0.032
Living sector	30.621	0.015
Current position	36.432	0.270
Current monthly salary	15.610	0.480

Civil status and living sector variables are highly significant (under 5% level) when considering moving shore based jobs by Sri Lankan seafarers. It can be concluded that tendency in moving shore based jobs by Sri Lankan seafarers is depending on civil status and the living sector variables.

V CONCLUSIONS

Overall job satisfaction of Sri Lankan seafarers is 83%. Job satisfaction of Sri Lankan seafarers can be mainly categorized into six significant factors due to the results of data reduction. Those factors are;

- Safety and protection
- Compliance with regulations and working conditions
- Freedom and work-life balance
- Salary and disciplines
- Job clarity and resources
- Other benefits

Safety and protection of seafaring career is depending on the civil status, age of the seafarer, experience and the starting job. Compliance with regulations on board and working conditions of seafarers are depending on the current position, living sector and starting age of the seafarers. Freedom and work-life balance of seafarers is depending on the current position, first job and the civil status. Job clarity and resources available to seafarers are depending on the current position. Tendency of moving shore based jobs is highly depending on the civil status and living sector of seafarers. This document is a template and it adopts standard practices used by researchers in both hard and soft sciences. You can download an

electronic copy of this template from <www.kdu.ac.lk> as an MS Word file and type your paper on it.

VI. LIMITATIONS OF THE STUDY

This research is based on Sri Lankan seafarers only. Job satisfaction of seafarers by their region, country cannot be compared using the study. Accurate list of Sri Lankan seafarers cannot be obtained and it is not maintained by the authorities. Difficulties caused during data collection as majority of seafarers are sailing. Most of the Seafarers were not answered for e mail Questionnaire.

VII SUGGESTIONS FOR FUTURE WORKS

This study can be further extended to identify the determinants of job satisfaction of seafarers in Sri Lanka, irrespective of their rank. This study can be further extended to identify the determinants in moving shore based jobs by Sri Lankan seafarers. This study can be further extended to compare determinants of job satisfaction of seafarers on regional basis.

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