

**THE EFFECT OF MOTIVATION ON EMPLOYEE JOB  
SATISFACTION IN THE UK: 2015**

**BY**

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**STATISTICS AND DATA MODELLING**

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## **Executive summary**

This report examines the effect of motivation on employee job satisfaction in the UK for the year 2015 making use of data from the EWCS survey (1991 to 2015, before Brexit). This is relevant for its implication for a case of improve productivity. The data used was derived from, the UK data archive.

The focus is to test the relationship between job satisfaction and motivation considering other potential variables. The analysis assumes that an individual can either be motivated about his job or not, and maximum allowable working hours is 48. The Ordinary Least Squares (OLS) method was used to estimate this relationship between these variables.

The report found out that motivation has a significant direct relationship to Job satisfaction. On the average, a motivated individual can be very satisfied. However, the analysis reveals that the safety of work is also a strong factor that drives job satisfaction aside being motivated.

## **1. Introduction**

There has been increasing empirical research over time studying job satisfaction and motivation in organizations. Employers are concerned about their employee's job satisfaction level basically because this has a huge impact on the employee's commitment, mobility, and performance. The development of an employee motivation, engagement and encouragement is very key to a successful business. One of the motivational factors for employees is their earnings. Earning is the compensation an employee receives for the labour he or she puts into the organization, and it is a major motivation for employees (Jwmaa, et al., 2022).

The consideration of workers' feeling that is seen as a job enabling workers material and psychological needs is referred to as job satisfaction. Business organizations relate the effectiveness of an employee as a resultant factor of an employee's job satisfaction. In line with this, a new managerial paradigm has it that employees' treatment as humans with their own desires, needs shows how important the concept job satisfaction is to the modern-day companies. The negative resultant effect of job dissatisfaction such as high staff turnover (absent of employee loyalty), frequent excuses to be absent from work, lackadaisical attitude of staff towards deliverables has led to increase in the study of job satisfaction (Aziri, 2011).

To further ascertain the relationship between motivation and job satisfaction, the study by (Andreas, D., 2022) shows that performance is driven by employee's motivation. Motivation at work is an employee's self-motivating zeal to execute a task which in turn results in high performance. The organizations that succeed strive to be highly competitive by ensuring employees are motivated and they are satisfied with the job as this reduces job turnover and improves the overall performance of the organization. Although there have been various studies with positive results or relationship between job satisfaction and motivation, this research is to identify specific motivational factor and to what extent they impact employee job satisfaction in UK.

## **2. Literature Review**

According to Weiss (2002), job satisfaction is commonly portrayed as an emotional reaction to the job, but it is better understood as a cognitive response. It could be seen as a comparison of whether a job is good or terrible from personal perspective. The term “motivation” and “job satisfaction is sometimes used interchangeably; however, they are not the same. (Peretomode, 1991) quoting Gibson et al., who made this point. They realised that an aspect of motivation is job happiness while job satisfaction is tied to the fulfilment workers find through various incentives and work - related activities. Motivation is majorly connected to goal-directed behaviour. In a study (Fahed-Sreih, J.2020) in empirical study using demographic information such as age, gender, education, to measure job satisfaction shows that age has a negative relationship with job satisfaction mostly on the older respondents.

Occupational commitment and affective organisational commitment are both attitudes, according to Lee, Carswell, and Allen’s (2000) research. It was linked to other job attitudes like job satisfaction, affective commitment, and job involvement, according to Lee et al. (2000)’s meta-analysis (study that quantitatively combines the findings of other studies). Since awards encourage and sustain the commitment needed for strong performance and a consistent workforce, they are advantageous to any firm (Wang, 2004).

Majority of firms have progressed considerably by strictly sticking to the organisational plan and establishing well-balanced staff incentive and recognition programmes. According to Bratton and Gold (1994) a “reward” is any kind of monetary compensation, intangible service, or benefit that an employee receives as a requirement of their employment contract with the company. Duke in his work examined factors that affect job satisfaction in daily employment settings using work stress, organizational demands, expectations, dealing with government amongst forensic scientists, the study showed that most respondent are satisfied with their jobs and over time the level of job satisfaction remained constant. (Duke. R et al., 2013)

Several studies have been conducted on job satisfaction using several metrics and over time these studies have been updated and reviewed, (Vinas B. et al., 2009) measured effect of job characteristics, job insecurity and work life balance has on job satisfaction, the study showed that conflicting work life balance and job insecurity tend to lower job satisfaction across all measurement domains. An Investigation by (Crisci, et.al, 2019) study the level of job satisfaction amongst respondents from a public school in Nepal using metrics such as leadership, communication , involvement in decisions, school structure among other demographic information such as age, gender, years of experience, the empirical study shows that experience is positively related to job satisfaction where the primary criterion for promotion is years of experience, and also they also have a significant say in management when compared to less experienced teachers.

### **3 Methodology**

#### **3.1 Data Selection**

The data was sourced from the UK data archive from a survey carried on European working conditions between 1991 to 2015 for 38 member countries. For the purpose of this research the data was restricted the respondents from United Kingdom in 2015. The PC based *R Studio version 2022 12.0 + 353* was used for the analysis of the data.

#### **3.2 Key data transformation and restriction**

Using the data code book and questionnaire as a guide, 37 variables were selected out of 738 variables with job satisfaction as the dependent variable and motivation as key explanatory variable using, the variable was further renamed from codes to variable names. Missing observation and outliers were removed from the data set, limiting the data for the analysis to 682 observations.

The dependent variable job satisfaction was reversed to a new measurement on a scale of 1 to 4 as a general response to where the response indicates “Not at all satisfied”, “Not very satisfied”, “Satisfied”, and “Very satisfied”, respectively while the key explanatory variable “motivation” was converted in a dummy response of 0 and 1, where 1 represents motivation while 0 represents no motivation.

Independent variable working hour was restricted to maximum of 48hours per week based on the recommended UK maximum working time (Kodz et al., 2003). Other independent variables were



transformed to values that can be used for the analysis and can be seen in the variable definition table in Appendix 1.

### **3.3 Choice of Model**

The choice of model is the ordinary least squared (OLS) bivariate and multivariate models which was used to explain the linear relationship between the independent variable Job Satisfaction and other explanatory variables. Based on the characteristic of the outcome variable, which is a discrete continuous variable, OLS is well suited for this purpose. Similar estimate model was used by Riyanto in his study on the effect of motivation and job satisfaction on the performance of teachers in Mentari School Bintaro (MSB) (Riyanto,2017). In this analysis for the model other variables like income, work life balance, work and health safety, job training, fair treatment, restructure, friendly colleagues, and recognition have been used to examine the effect of motivation on job satisfaction.

## 4 Data Analysis and Interpretation

Models	1	2	3
	Co-efficient (P-Value)	Co-efficient (P-Value)	Co-efficient (P-Value)
Intercept	2.83898 (2e-16)***	3.133 (2e-16)***	4.10288 (2e-16) ***
Income		1.227e-5 (0.2227)	
working hours		-4.399e-3 (0.0768).	
Recognition			-0.14204 (6.27e-7) ***
friendly colleagues			-0.14385 (0.000501) ***
Restructure			-0.13137 (0.003746) **
Involved			-0.05146 (0.003699) **
Fair treatment			-0.17334 (1.87) ***
Work_health_safety_risk		-3.869e-1 (1.88e-10)***	-0.25202 (8.76e-6) ***
Motivation	0.58030 (2e-16)***	5.133e-1 (2e-16)***	0.20977 (0.115e-3) ***
training job		-1.381e-1 (0.0371)*	-0.13387 (0.027890) *
training other		-1.095e-1 (0.577).	-0.04697 (0.384576)
training self		-2.878e-1 (0.1539)	-0.21701 (0.242273)
colleague support			0.04223 (0.173894)
RSE	0.6165	0.596	0.5448
R <sup>2</sup>	0.1674	0.2287	0.3594
Adj R <sup>2</sup>	0.1662	0.2207	0.3494
f-test	136.7	28.55	34.17
N	680	674	670

N= 682, Method = OLS (Muulti-variate)

Table 1: Table of regression models

#### 4.1. Co-linearity checks of the explanatory variables in the models:

The generalized variance inflation factor (gvif) of the variables in the models does not indicate any cause for concern through the multicollinearity check table below.

	Gvif	df	Gvif <sup>(1/2(2*df))</sup>
Recognition	1.852293	1	1.360990
friendly_colleagues	1.215645	1	1.102563
Restructure	1.088129	1	1.043134
Involved	1.147047	1	1.071003
Fair_treatment	1.442737	1	1.201140
Work_health_safety_risk	1.101677	1	1.049608
Motivation	1.520849	1	1.233227
Training	1.102664	3	1.016422
Colleague_support	1.257506	1	1.121386

Table 2: Collinearity check of the explanatory variables in model

#### 4.2 Regression Analysis and Models

$$\begin{aligned} \text{Model : Job satisfaction} = & 4.10288 - 0.14204(\text{recognition}) - \\ & 0.14385(\text{friendly colleagues}) - 0.13137(\text{Restructure}) - 0.05146(\text{Involved}) \\ & - 0.17334(\text{Fair treatment}) - 0.25202(\text{Work health safety risk}) + \\ & 0.20977(\text{motivation}) - 0.13387(\text{training}) + u \end{aligned}$$

Note:  $u$  are other variables that are assumed to satisfy zero conditional mean.

From the selected explanatory variables to explore Job satisfaction, the model defined above depict a high goodness of fit explaining the Job satisfaction, when an individual (all other factors remaining constant) is motivated, possible Job satisfaction level will result into a  $4.10288 + 0.20977 = 4.31265$  (i.e., very satisfied). This optimises the Job satisfaction of an individual. The

overall relevance of the explanatory variable is 34.17 significance with residual standard error of 54.48%. The below chart shows that the explanatory variables in the model explain the variation in Job satisfaction by a percentage of 35.94%, with a 34.94% compared to the rest two models. With this value, we choose the model to explain Job satisfaction.

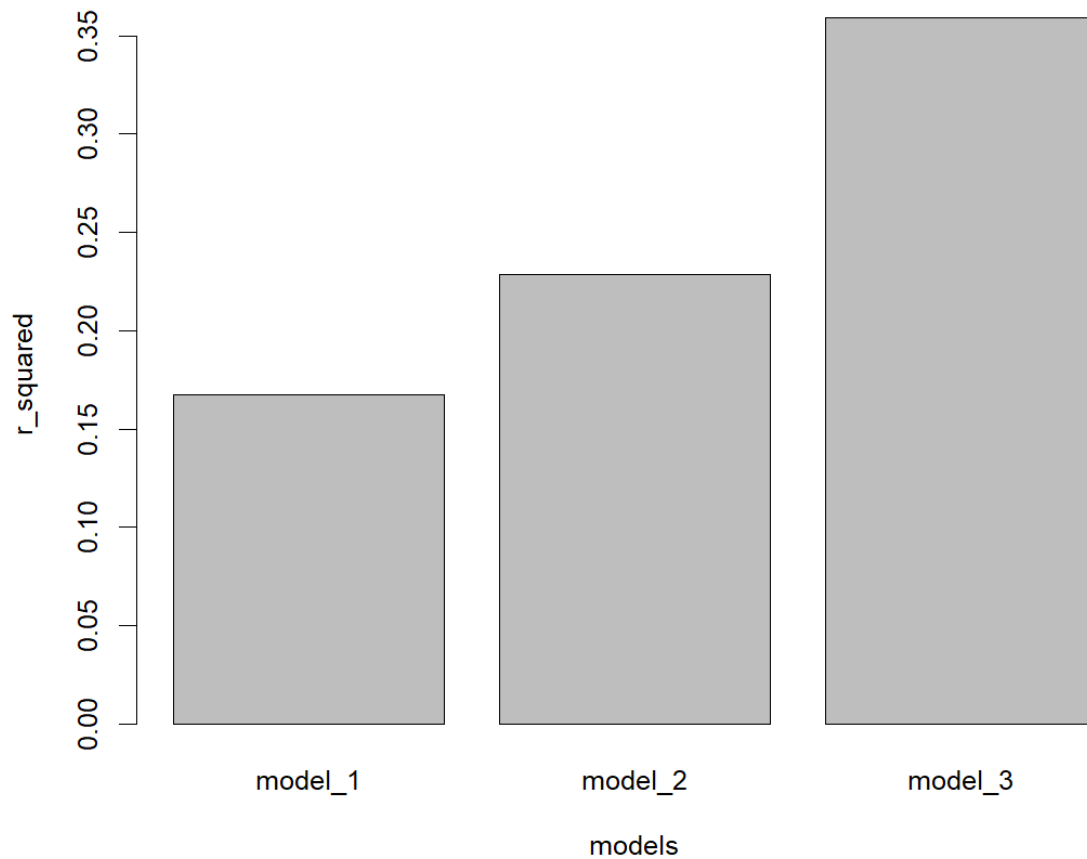
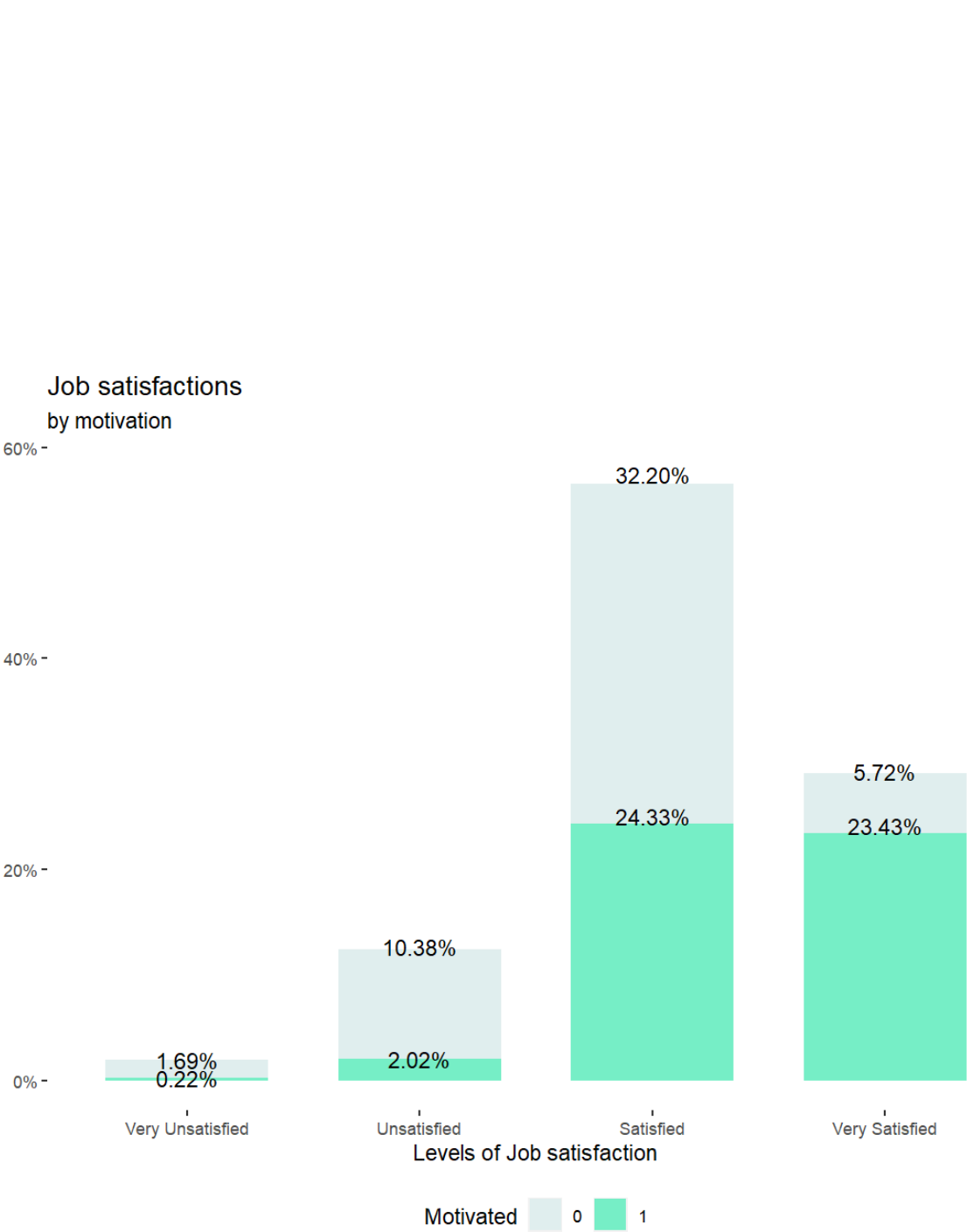


Figure 1: Goodness of fit of the regression models

Further to understand the areas of the model improvement, we have the below residual density plot for model.



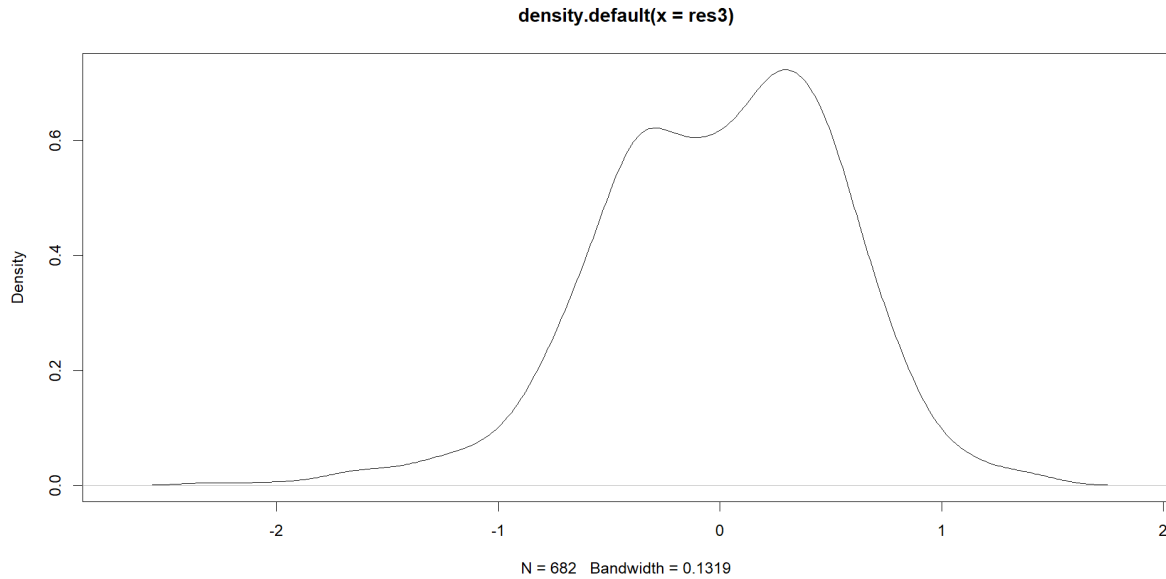


Figure 2: Residual density plot for model

The plot distribution of the residuals in the model follows a beta-distribution which is zero-one inflated. This does not deviate significantly from a normal distribution and is almost symmetric around zero. The model explains to an extent the job satisfaction and provides some level of adequacy.

The significant level (\*\*\*) i.e. 0.001) of motivation from the model, give interest to visualize how motivation of an individual (employed or self-employed) impact job satisfaction.

Figure3: Job satisfaction levels across the UK

On average, 85.55% of UK are satisfied with their jobs. From which 47.76% of them are satisfied with their job resulted from being motivated. This implies that 37.95% of satisfied people are driven by other factors (*that are briefly explained in appendix 2*).

## 5 Conclusions

The data analysis examined the effect of motivation on job satisfaction within the year 2015 in the UK for individuals (self-employed and employed) within the age of 15 to 84 years which the maximum allowable working hours is 48 and revealed interesting key findings.

Firstly, there is a direct relationship between motivation and job satisfaction at 0.001 level of significance. Individuals that are motivated exhibit a higher level of job satisfaction. However, the percentage of this falls within 47.76% of the 85.68% of the UK individuals that are satisfied. This strongly indicates that as such motivation has a significant direct relationship to job satisfaction, and it is not sufficient to determine job satisfaction.

In addition, the data exploration shows that other variables have an inverse relationship to job satisfaction at 670 degrees of freedom.

In conclusion, understanding the impact of motivation on job satisfaction is vital to understand the work-satisfaction rate. The analysis identified that more explanatory variables and data are needed to explore and understand the impact of motivation on job satisfaction in the UK.

The fact that the model has moderate  $R^2$  (0.3594) and adjusted  $R^2$  values (0.349) indicates that the capacity of the models to explain the variance in job satisfaction owing to the variation in independent variables is quite moderate below the average. The F-statistics demonstrates that the explanatory variables are jointly statistically significant in the model up to 34.17, and the density of the residual plot with the slight departure of the skewness from normal distribution shows some level of model refinement. Both findings support that there is a need for the model to be improved.

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<b>Variable</b>	<b>Description (values)</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Age	Age respondent (15-84) Discrete	43.1	12.3	17.00	84.00
Income	Net income of the respondents. Continuous	1737	2322	25	33000
working_hours	Working hours per week (1-48 hours) Continuous	34.4	9.47	6.00	48.00
Job_satisfaction	Job satisfaction level of the respondent (1-4) Discrete Continuous	3.22	0.675	1.000	4.000
Gender	Respondents gender (male, female) categorical			4.0	6.0
Recognition	Job recognition level of the respondents (1-5) Discrete continuous	2.29	1.01	1.000	5.000
Friendly colleagues	Respondents' colleagues' level of friendliness (1-5) Discrete Continuous	1.46	0.560	1.000	5.000
Restructure	Respondents who were affected by restructure in the workplace (1, 0) dummy variable	0.367	0.482	0.0000	1.0000
Colleague support	Respondents level of colleagues' support (1-5) Discrete Continuous	1.70	0.755	1.000	5.000
Involved	Respondents level of been involved in decision making process (1-5) Discrete Continuous	2.60	1.27	1.000	5.000
Fair_treatment	Respondents level fair treatment (1-5) Discrete Continuous	1.71	0.762	1.000	5.000
Work_health_safety_risk	Respondents' exposure to workplace health and safety risk (1, 0) dummy variable	1.81	0.390	1.000	2.000
Motivation	Respondents job motivation (1, 0) dummy variable	0.654	0.476	0.000	1.000
Training	Type of training done by the respondent (training job, training others, training self) Categorical			3.0	8.0

## Appendixes

### Appendix 1: Variable Definition and Descriptive statistics table

## Appendix 2: Visualisation of other explanatory variables on job satisfaction

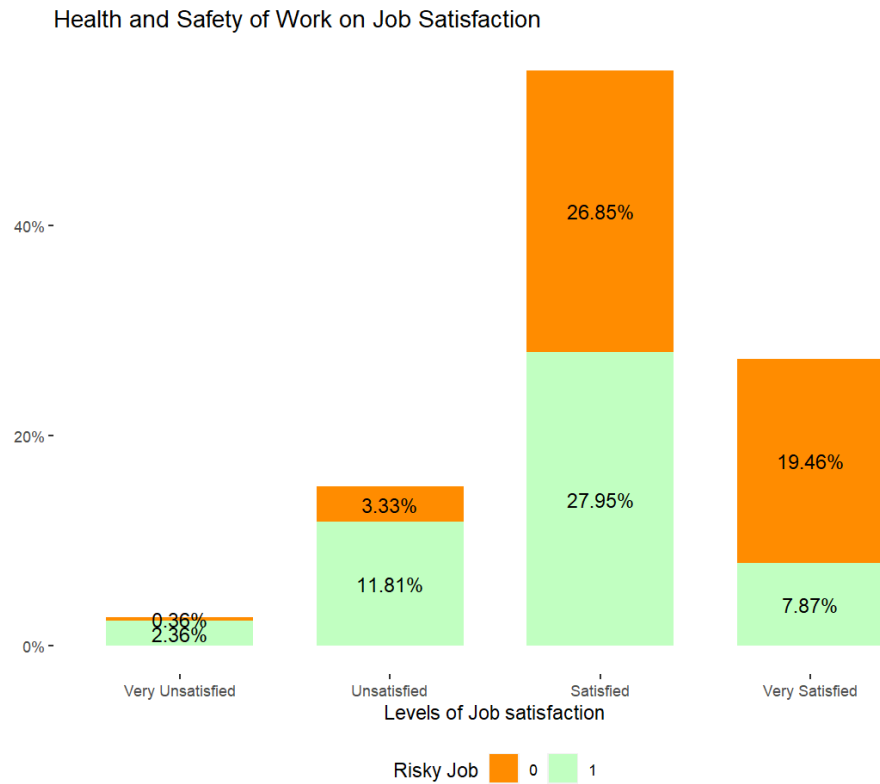


Figure4: Health and Safety of Work on Job Satisfaction

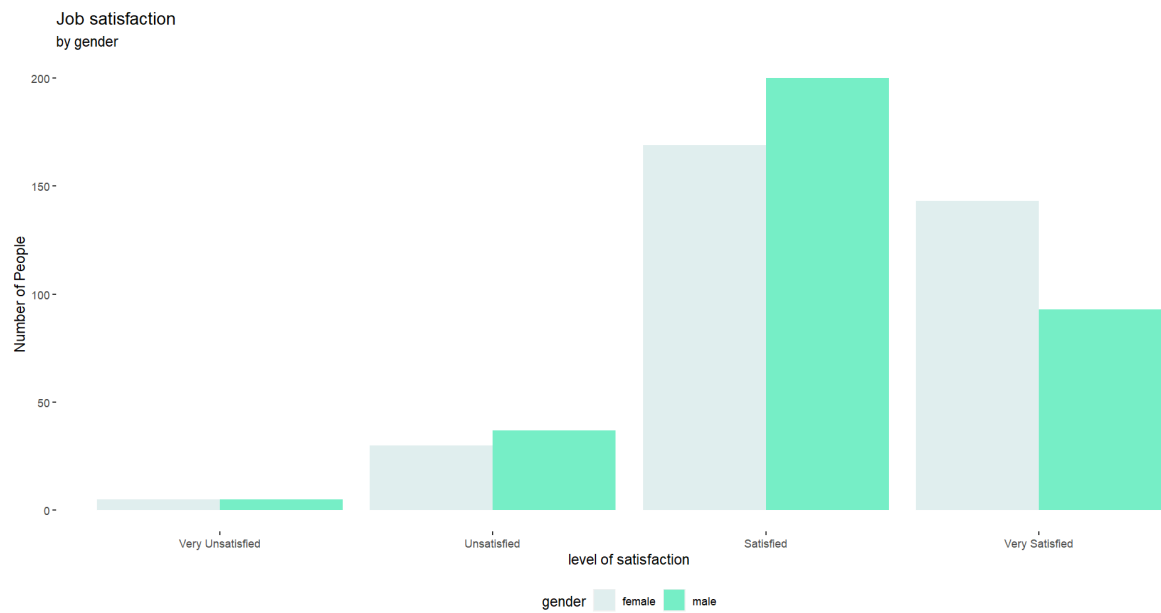


Figure 5:  
Income distribution

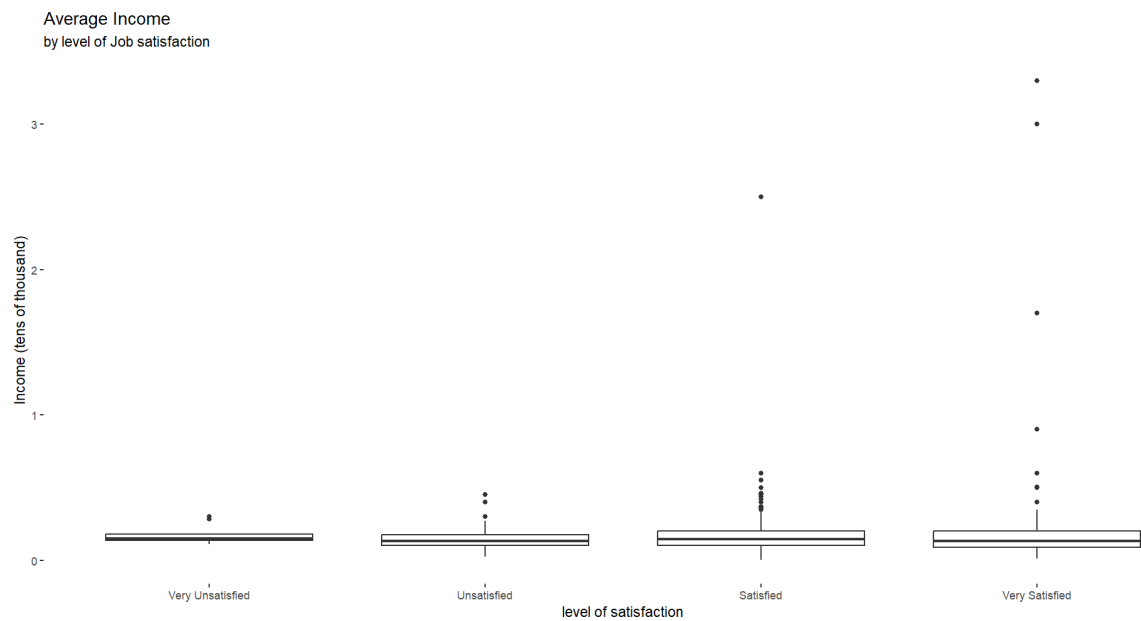


Figure 6:

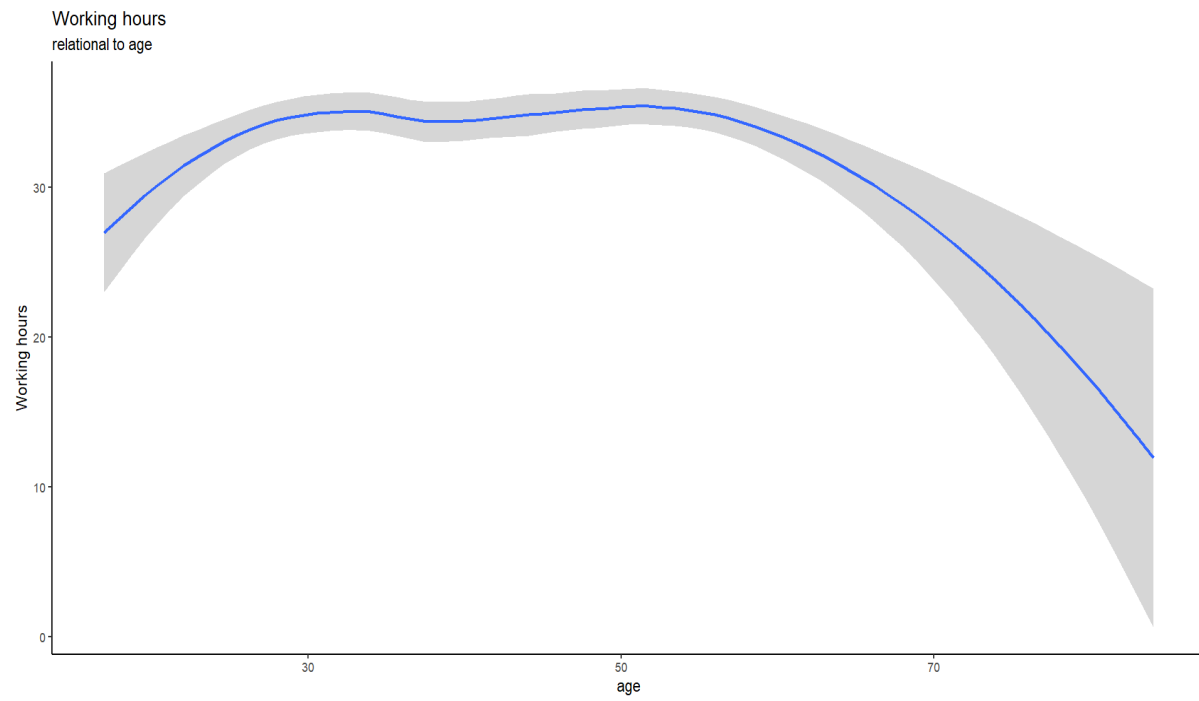


Figure 7: Working hours by Age.

### Appendix 3: Insights from figures in appendix 2

1. The work health and safety variable indicated a significant in relationship to job satisfaction. Figure 4 reveals that jobs associated with no risk account for a significant percentage of job being satisfied and very satisfied with proportion of 26.85% and 19.46% respectively.
2. The demographic plot of gender job satisfaction reveals male are more satisfied, while females are more very satisfied in their job. However, the analysis did not reveal the significance of this.
3. Income is expected to have a direct impact on job satisfaction. The average income plot: figure 6 reveals that high income does not drive a direct relationship to job satisfaction. However, the plot infers that income ('tens of thousands) across all levels of job satisfaction is below 5,000 in value.



