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Article in *J for Global Business Advancement* · January 2019

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Determinants of job satisfaction in the Lebanese construction sector

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Abstract: Job satisfaction is the fulfilment or enjoyment that a person derives from their job. Job satisfaction has been a focal point of social sciences studies since the early 1900s, due to its substantial impact on employees' mental health, as well as its influence on the workplace atmosphere and productivity. This study aims to ascertain the determinants of job satisfaction in the Lebanese construction sector. The primary data was gathered through a quantitative structured questionnaire, while the sample amounted to 106 employees in the construction sector. The results of the study revealed a significant positive relation between payment (salary), financial benefits, promotion, and personal job satisfaction. In addition, this study revealed a non-significant connection between gender, age, package incentives, job security, rank, relationships with co-workers, stress/work-family conflict, designation (social recognition), and job satisfaction.

Keywords: job satisfaction; job performance; construction.

Reference to this paper should be made as follows: Vrontis, D., El Chaarani, H., El Nemar, S. and Yamak, B. (2019) 'Determinants of job satisfaction in the Lebanese construction sector', *J. Global Business Advancement*, Vol. 12, No. 4, pp.516–541.

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1 Introduction

Lebanon's fragile economy depends heavily on its most attractive and promising sector, being the construction section, with real estate transactions enjoying a resurgence in 2016 and early 2017. The construction sector, with all its related professions and business types (architecture, engineering, surveying, utilities, etc.), is divided into residential, non-residential (hospitals, parks, theatres), and infrastructural (dams, highways, bridges) projects, affiliated with either the private or public sector. These professions play an imperative role in enriching the Lebanese economy, keeping it steady and prosperous. Lebanese construction companies, similar to other establishments, would benefit from a detailed study on the determinants of job satisfaction. What follows is a deeper investigation of job satisfaction determinants and how they can further aid in maintaining and preserving the construction sector's sustainability and competitiveness. Employee job

satisfaction has been defined as a positive feeling about one's job (Varshney and Varshney, 2017), including enthusiasm, enjoyment, and fulfilment in the workplace (Choi and Ha, 2018).

Even though job satisfaction has been intensively researched in multiple fields across the academic world, job satisfaction continues to be of high interest, as it depends on a variety of factors such as pay, promotion, work stress, and social recognition. Job satisfaction differs from one employee to another, based on an employee's job perception including preferences, and the degree of contentment with varying facets of the job (Rukh et al., 2015). Job satisfaction is an important attribute of labour markets, and its effects on employee absenteeism, job performance, productivity, organisational commitment, loyalty, motivation, and turnover rate have been considered vital for organisation performance (Nandan et al., 2018; Böckerman and Ilmakunnas, 2012; Choi and Ha, 2018). Organisations are capable of improving morale, motivation, commitment, loyalty, and overall job satisfaction by promoting high quality performances through support, and by implementing effective recruitment and retention job strategies. Job satisfaction remains a subject of profound interest to both academics and practitioners (Melián-González et al., 2015; Varshney and Varshney, 2017; Markiz et al., 2017; Sanei and Poursalimi, 2018).

1.1 Academic and practical importance of the study

There are limited studies conducted in undeveloped economies addressing small and medium sized construction firms (Kashmoola et al., 2017). The number of studies on the determinants of job satisfaction specifically in the Lebanese construction sector are scarce. Bearing this in mind, this paper will concentrate solely on the views of civil engineers on job satisfaction and the preferences tied to it (Albattah et al., 2016).

This study contributes to the existing literature in the following ways:

It fills the void in the literature regarding the impact of demographic factors (gender and age), financial factors (payment, financial benefits, incentive package, job security, rank, and promotion), and non-financial factors (relations with co-workers, stress/work–family conflict, working conditions, and designation) on employee satisfaction in the Lebanese construction sector (Kashmoola et al., 2017; Rukh et al., 2015). Managers and decision-makers in Lebanese construction firms can exploit the results of this study in order to become more effective in evaluating and improving employee satisfaction levels by concentrating on the most influential satisfaction facets (Melián-González et al., 2015).

1.2 Research question and objective

This study aims to answer the research question: What are the determinants of employee job satisfaction in the Lebanese construction sector?

The purpose of this study is to examine the influence of each demographic, financial, and nonfinancial determinant of job satisfaction on overall employee satisfaction levels in the Lebanese construction sector

2 Literature review

Job satisfaction is still one of the most complex issues that both academics and managers face daily. Further academic research is required in order to fill the existing gaps in the literature regarding some aspects of job satisfaction. Managers need to fully grasp the concepts of job satisfaction and its determinants so that employees can become better and more managed. Numerous studies have demonstrated the impact of job satisfaction on the motivation and productivity of employees, thus granting any research conducted on job satisfaction a great deal of significance (Aziri, 2011). Organisations need to understand that satisfying employees comes by offering them true value (Vrontis et al., 2010).

2.1 Definition of job satisfaction

Job satisfaction does not have a single comprehensive definition, due to the fact that it consists of dissimilar dimensions (Rukh et al., 2015). However, scholars like Hoppock (1935) and Spector (1997) have provided prominent definitions for job satisfaction. Hoppock (1935) defined it as “any combination of psychological, physiological, and environmental circumstances that cause a person to say truthfully “I am satisfied with my job”.” Spector (1997) explained that job satisfaction has to do with the way people feel about their job and its various aspects. It has to do with the extent to which people like or dislike their job (Albattah et al., 2016; Kashmoola et al., 2017).

2.2 Determinants of job satisfaction

2.2.1 Gender

One of the first researchers to examine the relationship between gender differences and job satisfaction was Hodson (1989); he found that men and women have different determinants of job satisfaction, like job characteristics, personal expectations, and family responsibilities. Each society exhibits certain social cues and values which pose a major but different influence on the attitudes, behaviours, and opinions of men in comparison with women. Women place a higher value on job significance and social relations, while placing a lower value on earnings, compared to men. Men, on the other hand, tend to sacrifice household chores and childcare in favour of job responsibilities and being more career-oriented (Lee and Kim, 1998; Hodson, 1989; Clark, 1997; Westover, 2012; Rukh et al., 2015). Empirical studies on the relationship between job satisfaction and gender differences found inconsistent and inconclusive results and require further examination. Some researchers found that the relationship between job satisfaction and gender differences is non-significant (Mobley et al., 1994; Fields and Blum, 1997; Westover, 2012; Rukh et al., 2015), whereas, many other authors did find a relationship between job satisfaction and gender differences to be significant (Roxburgh, 1999; Clark, 1997; Sousa-Poza and Sousa-Poza, 2000; Blau and Kahn, 1992; Westover, 2012; Hagedorn, 1996; Rukh et al., 2015; Chiu, 1998; Mason, 2008; Roskam, 2011).

2.2.2 *Age*

The work-age relationship is still considered an important subject of study by academics. Different techniques of analysis were implemented, producing different findings which have varying implications on different countries, cultures, industries, and time periods. One of the reasons for the different techniques is the conflict between researchers on the concept of age. Job satisfaction could be affected by a series of age-related factors, like actual chronological age (people at different ages have different expectations and needs), experience, organisational age, and the length of service which supplements employees with higher skills (Ng and Feldman, 2010; Krumm et al., 2013; Bedeian et al., 1992; Avolio and Waldman, 1994; Kooij et al., 2008). The construction industry deals with contradictory age-work relationship effects on job satisfaction, possibly due to the deployment of different age concepts in the studies (Chileshe and Haupt, 2010; Kooij et al., 2008). Empirical research conducted by scholars regarding the association between age and job satisfaction is inconclusive and varies from one domain to another (Hickson and Oshagbemi, 1999; Rukh et al., 2015).

2.3 *Financial determinants of job satisfaction*

2.3.1 *Payment*

The nature of payment structure (wages, salaries, etc.) is a tangible and extrinsic determinant directly associated with job satisfaction (Clark and Oswald, 1996; Ferrer-i-Carbonell, 2005; Porter et al., 1974). Empirical data shows a significant relationship between pay and job satisfaction (Oshagbemi, 1997; Arnolds and Boshoff, 2001; Sweeney and McFarlin, 2005; Kamal and Hanif, 2009; Chimanikire et al., 2007; Rukh et al., 2015; Sokolová et al., 2016; Pouliakas, 2010).

2.3.2 *Financial benefits*

Financial benefits, sometimes described as indirect compensations, refer to the monetary benefits (social security, tuition reimbursement, etc.) provided to the employees by the organisation they work in. Paid vacations are another form of financial benefit. They are bestowed by the company to their employees in order for them to rest and recuperate (Shawish, 2006). Financial benefits can also be in the form of add-ons or bonuses to the base wage structure. The retirement pension is also a form of financial benefit. It contains clauses related to marriage, orphans, and assets (Ammam, 2018). Empirical studies indicate a significant positive relationship between financial benefits and job satisfaction. Authors, such as Arnolds and Boshoff (2001), Sweeney and McFarlin (2005), and Kamal and Hanif (2009), found that financial benefits and compensation positively influence job satisfaction levels (Ammam, 2018).

2.3.3 *Incentive package*

Incentive packages are defined as rewards or additional income the employee receives other than their principal salary from the company. They can be remunerations, grants, and bonuses the employee receives in recognition of high-level performances (Ammam, 2018). Studies found that job satisfaction levels are determined by employees' perspectives on the rewards available to them when performing their job. The values

of these rewards can be measured via surveys, questionnaires, or other contemporary methods (Kalleberg, 1977). Numerous documentations and articles prove that incentive packages have an integral and positive influence on job satisfaction (Frey and Stutzer, 2002; Van Praag et al., 2004; Frey, 2008; Pouliakas, 2010; Arnolds and Boshoff, 2001; Sweeney and McFarlin, 2005; Kamal and Hanif, 2009; Gibbons and Waldman, 1999; Holmstrom, 1979; Mas-Colell et al., 1995; Rukh et al., 2015; Pouliakas, 2010).

2.3.4 Job security

According to Herzberg (1968), job security occurs when the organisation provides stability for its employees and encourages them through various means to stay with the organisation. Meltz (1989) defined job security as *an individual remains employed with the same organisation with no diminution of seniority, pay, and pension rights*. In recent years, job security has been a subject of a great deal of research interest (Mahmoud and Reisel, 2014). The empirical results of earlier studies indicate that there are significant positive correlations between job satisfaction and job security (Ashford et al., 1989; Iverson, 1996; Bhuian and Islam, 1996; Abegglen, 1958; Reisel et al., 2007, 2010; De Cuyper et al., 2009; Hu and Zuo, 2007; Yousef, 1998; Mahmoud and Reisel, 2014).

2.3.5 Rank

There exist a relatively small number of studies (23 articles between 1981 and 1997) pertaining to the impact of rank on satisfaction levels. Empirical research on the relationship between rank and job satisfaction suggests a significantly positive one, where Ronen (1978), Near et al. (1978), Miles et al. (1996) and Oshagbemi (1997) noticed that the higher the occupational level, the higher the levels of job satisfaction.

2.3.6 Promotion

Promotion is considered to be an influential determinant of job satisfaction. Promoted employees enjoy positive changes in characteristics of their job (salary and autonomy), increasing their overall satisfaction levels even further. Employee competency is improved through fair promotion policies and evaluation systems (Rukh et al., 2015; Ammam, 2018). Empirical data indicates a significant positive link between promotion opportunities and job satisfaction (Kosteas, 2009; Knowles, 1964; Ley, 1966; Farris, 1971; D'Souza, 2002; Shields and Ward, 2001; Freeman, 1978; Ellickson and Logsdon, 2002; Hooi, 2012; Pergamit and Veum, 1999; Rukh et al., 2015; Porter et al., 1974).

2.4 Non-financial determinants of job satisfaction

2.4.1 Co-worker relationships

Research has supported the importance of determining the impact of relations with co-workers on job satisfaction, as HRM practices can ultimately control the rhythm of the relationship between employee and employer and, hence, have the potential to motivate employees (Taamneh et al., 2018). These HRM practices do have a positive effect on organisational performance (Bresciani et al., 2012). Growth, job attachment, goal sharing, problem-solving, and work/life balance are impacted by these collaborative relationships. On the contrary, employee dissatisfaction levels and turnover rates

rise when employees share poor relationships with their superiors and peers (Watson, 2009; Rukh et al., 2015). Whereas, employees who felt trust and had positive feelings of treatment within the organisational context adopt positive working relationships with their colleagues and their line managers (Komodromos et al., 2018; Saunders, 2011). Social context can facilitate positive employees' interpersonal relationships and their willingness to help and share experiences among each other (Chebbi et al., 2015). Empirical research point out a significant positive correlation between relations with co-workers and job satisfaction (Watson, 2009; Ribelin, 2003; Avolio and Waldman, 2004; Fultz et al., 2018; Hogan, 2005; Trempe et al., 1985; Brown et al., 1998; Ellickson and Logsdon, 2002; Rukh et al., 2015).

2.4.2 *Stress/work–family conflict*

Multiple researchers have widely regarded work stress as a critical influence on job satisfaction levels. Work stress is defined as “an employee’s reaction to characteristics at the workplace that seem mentally and physically threatening” (Jamal, 2005). High levels of work stress have detrimental effects on employees’ satisfaction and performance. Stress could produce an unsafe work environment where employees are unhealthy, unmotivated, less productive, and more likely to leave the organisation (Lu et al., 2017). Work–family conflict is another factor related to both work stress and job satisfaction. Work–family conflict is defined as *a form of inter-role conflict that will appear when it is difficult to balance the pressure of work and family* (Greenhaus and Beutell, 1985). It can be based on either strain, time, or behaviour (Voydanoff, 1999; Lu et al., 2017).

Empirical studies reveal a significant negative correlation between stress/work–family conflict and job satisfaction (Armstrong et al., 2015; Özbağ and Çiçek, 2014; Blomme et al., 2010; Halkos and Bousinakis, 2010; Manzoni and Eisner, 2006; Rukh et al., 2015; Lu et al., 2017).

2.4.3 *Working conditions*

A healthy working environment is an environment sufficiently equipped with tools, machines, and gadgets required to properly fulfil the obligations of the job. A healthy workplace environment also generally incorporates guaranteed job security, adequate payment, recognition, absence of stress, and work/life balance. In such atmospheres, leaders appreciate, encourage, and sympathise with their employees. On top of that, in these environments, employees communicate, cooperate, and share decision-making roles with each other and with their superiors (Fultz et al., 2018). Empirical databases reveal a significant positive relation between working conditions and job satisfaction (Demet, 2012; Stallworth and Kleiner, 1996; Robbins, 2005; Greenberg and Baron, 1995; Arnolds and Boshoff, 2001; Villotti et al., 2012; Rukh et al., 2015; Albattah et al., 2016; Fultz et al., 2018).

2.4.4 *Designation (social recognition)*

Social recognition often means the judgement that someone is valuable in their work place environment and society in general. Hellman (1997) defined job recognition as “*the rewards of monetary and non-monetary nature given in the community or*

communicated in the place of work based on the achievement or success of a person". Marks (2006) agrees with Hellman's definition and adds that desirable behaviours expressed by the individual often lead to the attainment of recognition. Therefore, recognition is an important concept and its relationship with satisfaction becomes a crucial research subject especially in developing countries (Amarasena et al., 2015).

Empirical research on the topic, guided by multiple theories, yields a significantly positive association between recognition and job satisfaction (Herzberg two-factor theory, Instrumentality and Expectancy Theory, Aldefe ERG theory, Vroom's Valence, and Maslow's need hierarchy theory) (Herzberg et al., 1959; Locke, 1976; Josias, 2005; Danish and Usman, 2010; Ali and Ahmed, 2009; Amarasena et al., 2015).

2.5 Conceptual theoretical framework

The independent variables are the demographic, financial, and non-financial factors. Demographic factors are gender and age. Financial factors are payment, financial benefits, incentive package, job security, rank, and promotion. Non-financial factors are co-worker relationships, stress/work-family conflict, working conditions, and designation (social recognition) (Rukh et al., 2015) (Figure 1).

Figure 1 Proposed theoretical framework (see online version for colours)



Hypotheses development

Based on the discussions covered in the literature, the following alternative hypotheses are formulated and predicted to be true in relation with the construction sector:

Demographic determinants

H1: There is a significant positive association between gender differences and job satisfaction.

Financial determinants

SH1-1: There is a significant positive association between payment and job satisfaction.

SH1-2: Financial benefits have a significantly positive association with job satisfaction.

SH1-3: Incentive package has a significantly positive association with job satisfaction.

SH1-4: There is a significant positive association between job security and job satisfaction.

SH1-5: There is a significant positive association between rank and job satisfaction.

SH1-6: There is a significant positive association between promotion and job satisfaction.

H2: There is a significant difference in job satisfaction based on age groups.

Non-financial determinants:

SH2-1: There is a significant positive association between co-worker relationships and job satisfaction.

SH2-2: There is a significant negative association between stress/work-family conflict and job satisfaction.

SH2-3: There is a significant positive association between working conditions and job satisfaction.

SH2-4: There is a significant positive association between designation (social recognition) and job satisfaction.

3 Methodology

3.1 Research design

An accurate market analysis requires a research design tailored to fit the objectives of the study. Research designs are often either qualitative or quantitative (Hosseini et al., 2014). This study adopts a quantitative approach considering the nature of the research objectives; allowing us to collect information on the views, attitudes, backgrounds, and behaviours of a large group of people and, ultimately, to generalise the results to the population concerned (Neuman, 2006). The researcher will rely on previous related

studies and questionnaires to capture primary data and to establish the major determinants of job satisfaction in the Lebanese construction sector. The questionnaire consists of three sections: demographic data (gender, age, education, and work experience) is covered in the first section; the independent variables (financial and non-financial, refer to Table 2) data are covered in the second section; finally, the dependent variable (job satisfaction, refer to Table 1) is covered in the last section. A 5-point Likert scale measures the respondents' answers, with 1 indicating strong disagreement, 2 indicating disagreement, 3 indecision, 4 agreement, and 5 indicating strong agreement (Creswell, 2009; Rajput et al., 2017; Hosseini et al., 2014). The questionnaires target civil engineers in small to medium-sized construction firms in Lebanon and will be distributed via email or by hand and collected upon completion. The non-contrived settings will ensure the validity and reliability of the results. The assembled data is logged in SPSS to be analysed and discussed in the coming section.

3.2 Conceptual and operational definitions of variables

Table 1 Dependent variables

<i>Variable</i>	<i>Conceptual definition</i>	<i>Operational definition</i>
Job satisfaction	Job satisfaction is how people deem their job and its many aspects. It is the extent to which employees like or dislike their job (Spector, 1997)	Eight statements on 5 point Likert Scale will be used to measure job satisfaction (Bowling Green State University, 2009; Mahmoud and Reisel, 2014; Hoppock, 1935)

Table 2 Independent variables

<i>Variable</i>	<i>Conceptual definition</i>	<i>Operational definition</i>
Gender (Demographic)	Gender differences between male and female employees in the organisation (Hodson, 1989; Carvajal et al., 2018)	1 Question on Nominal (Binary) Scale will be used to measure gender differences
Age (Demographic)	The chronological (calendar) age of the employee (Kooij et al., 2008; Ng and Feldman, 2010; Oshagbemi, 2000)	1 Question on Ordinal (Categorical) Scale will be used to measure the respondent's age
Payment (Financial)	Payment is a tangible and extrinsic determinant directly associated with job satisfaction (Clark and Oswald, 1996; Clark, 1997; Ferrer-i-Carbonell, 2005; Porter et al., 1974)	5 statements on 5 point Likert Scale will be used to measure payment satisfaction (Ammam, 2018; Bowling Green State University, 2009; University of Minnesota, 1977)
Financial benefits (Financial)	Financial benefits are the monetary benefits provided to employees by the organisation (Ammam, 2018)	5 statements on 5 point Likert Scale will be used to measure satisfaction with financial benefits (Ammam, 2018)
Incentive package (Financial)	Additional income (remunerations, grants, bonuses, etc.) the employee receives to his or her principal salary in recognition of high-level performances (Ammam, 2018)	4 statements on 5 point Likert Scale will be used to measure satisfaction with incentive package (Ammam, 2018; Pouliakas, 2010)

Table 2 Independent variables (continued)

<i>Variable</i>	<i>Conceptual definition</i>	<i>Operational definition</i>
Job security (Financial)	An employee remains in the same organisation with no diminution of seniority, pay, pension rights, etc. (Meltz, 1989; Mahmoud and Reisel, 2014)	4 statements on 5 point Likert Scale will be used to measure satisfaction with job security (Mahmoud and Reisel, 2014)
Rank (Financial)	The employee's job status, level, or seniority in an organisation (Oshagbemi, 1997)	4 statements on 5 point Likert Scale will be used to measure satisfaction with the rank in the organisation (University of Minnesota, 1977; Oshagbemi, 1997)
Promotion (Financial)	Positive changes in an employee's job (salary increase, self-assertion...) when rising to higher ranks and positions within a firm (Rukh et al., 2015; Ammam, 2018)	6 statements on 5 point Likert Scale will be used to measure satisfaction with promotion in the organisation (Ammam, 2018; Hooi, 2012; University of Minnesota, 1977; Bowling Green State University, 2009)
Co-worker relationships (Non-financial)	The employee's connections with his or her co-workers (peers and superiors) which affect his or her goal sharing, problem solving, etc. (Watson, 2009; Rukh et al., 2015)	7 statements on 5 point Likert Scale will be used to measure satisfaction with co-worker relationships (University of Minnesota, 1977; Bowling Green State University, 2009; Watson, 2009; Rukh et al., 2015)
Stress/work–family conflict (Non-financial)	Stress is the employee's negative reaction to mental and physical difficulties in the workplace (Jamal, 2005) Work–family conflict is a form of interrole conflict that arises when it becomes difficult to moderate between the pressures of work and family (Greenhaus and Beutell, 1985).	8 statements on 5 point Likert Scale will be used to measure stress and work–family conflict (University of Minnesota, 1977; Lu et al., 2017)
Working conditions (Non-financial)	The availability of tools, presence of favourable conditions (job security, recognition...), and effective co-worker relationships within the organisation (Fultz et al., 2018)	5 statements on 5 point Likert Scale will be used to measure satisfaction with working conditions (University of Minnesota, 1977; Fultz et al., 2018)
Designation (Non-financial)	Monetary or non-monetary rewards given in the workplace based on an individual's success and achievement (Hellman, 1997)	5 statements on 5 point Likert Scale will be used to measure satisfaction with social recognition (University of Minnesota, 1977; Amarasena et al., 2015)

3.3 Population and sample

The population of this study is civil engineers (more than 10,000) in the Lebanese construction sector, and the sample was chosen to properly reflect that population (Markiz et al., 2017). Probability sampling cannot be conducted due to the difficulty in

reaching a significant portion of the population, so the non-probability convenience sampling technique will be used in this study. This study is a cross-section, or one-shot, study where the data was collected during 2018 from 106 civil engineers.

4 Results and data analysis

This section of the study looks at the results from the data collection.

4.1 Reliability test

Reliability tests ensure the stability, lack of errors, and consistency of measures across various items and over time. They assess the goodness of the developed measures (Saunders et al., 2009).

Cronbach's alpha, in this study, tests for reliability by producing a coefficient of an instrument's internal consistency. Rukh et al. (2015) stated that any value below 0.6 is a poor index for reliability. Any value above 0.6 is considered acceptable. A reliable measure produces the same result repeatedly when used under similar conditions (Rukh et al., 2015).

The reliability of the dependent variable and all the independent variables — except gender and age is:

Table 3 Cronbach's alpha reliability coefficient of variables

<i>Variable</i>	<i>Number of items</i>	<i>Cronbach's alpha</i>
Payment	5	0.865
Financial benefits	5	0.865
Incentive package	4	0.866
Job security	4	0.868
Rank	4	0.869
Promotion	6	0.867
Co-worker relationships	7	0.878
Stress/work–family conflict	8	0.901
Working conditions	5	0.886
Designation (social recognition)	5	0.875
Job satisfaction	8	0.867

Table 3 reveals that the overall Cronbach's alpha reliability coefficient of 13 items is 0.885. As for the individual Cronbach's alpha values, the lowest is 0.865. All values are above 0.6, so the reliability of all the questions regarding each variable is acceptable.

4.2 Descriptive statistics

Table 4 refers to the demographics of the participants; consequently, out of 106 respondents who completed the survey, the majority are males (59%), between the ages of 24 and 29 (40%), have a bachelor's degree (33%), and possess more than

20 years of experience (30%). The least numbers of respondents are between 40 and 49 (13%), have a PhD (12%), and only have up to two years of experience (11%).

Table 4 Statistical data of demographic factors

<i>Demographic</i>		<i>Frequency</i>	<i>%</i>	<i>Mode</i>
Gender	Male	63	59.4	Male
	Female	43	40.6	
Age (years)	24 → 29	43	40.6	24 → 29
	30 → 39	25	23.6	
	40 → 49	14	13.2	
	50 → 66	24	22.6	
Education	Bachelor's	35	33	Bachelor's
	Diploma	28	26.4	
	Master's	30	28.3	
	PhD	13	12.3	
Work experience (years)	Up to 2	12	11.3	More than 20
	2 → 5	24	22.6	
	5 → 10	23	21.7	
	10 → 20	15	14.2	
	More than 20	32	30.2	

4.3 Multiple regression and hypotheses testing

Multiple regression analysis is used to quantify the impact each of the independent variables has on the dependent (Y) variable. The multiple linear regression model is the logical extension of the simple linear regression:

$$Y = A + B1.X1 + B2.X2 + B3.X3 + B4.X4 + B5.X5 + B6.X6 + B7.X7 + B8.X8 + B9.X9 + B10.X10 + B11.X11 + B12.X12$$

Y represents the dependent variable: job satisfaction.

Bn is the slope.

A is the y-axis intercept (constant)

Xn represents all the independent variables: Gender (G), Age (A), Payment (Pa), Financial

Benefits (FB), Incentive Package (IP), Job Security (JS), Rank (R), Promotion (Pr), Co-worker Relationships (CR), Stress/Work–Family Conflict (S), Working Conditions (WC), and Designation (Social Recognition) (D).

4.4 Model summary

In Table 5, it is shown that the R value = 0.860, the R Square = 0.740, and adjusted R Square = 0.706. Adjusted R Square shows that 70.6% of job satisfaction can be explained through gender, age, payment, financial incentives, incentive package, job security, rank,

promotion, co-worker relationships, stress/work–family conflict, working conditions, and designation (social recognition), and 29.4% of the variation of the dependent variable (job satisfaction) is explained by other variables not included in the model.

Table 5 Model summary

<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R square</i>	<i>Std. error of the estimate</i>
	0.860 ^a	0.740	0.706	0.42601

^aPredictors: (Constant), G, A, Pa, FB, IP, JS, R, Pr, CR, S, WC, D

^bDependent Variable: Job Satisfaction.

4.5 ANOVA

The entire model is significant since Significance = 0.000 (< 1%) with Fisher Test $F = 22.040$ (Table 6).

Table 6 ANOVA

<i>Model</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
Regression	47.999	12	4.000	22.040	0.000 ^b
Residual	16.878	93	0.181		
Total	64.877	105			

^aPredictors: (Constant), G, A, Pa, FB, IP, JS, R, Pr, CR, S, WC, D.

^bDependent Variable: Job Satisfaction.

4.6 Collinearity statistics

Collinearity is the correlation between the predictor variables (independent variables); they express a linear relationship in a regression model. Very high values of correlation imply multicollinearity. Multicollinearity is a problem that may arise in regression analysis when high correlation of at least one independent variable with a combination of the other independent variables results in redundant response information in model predictors. Multicollinearity should be avoided (Salmerón Gómez et al., 2016). The researchers tested for collinearity using VIF (Variance Inflation Factor) and tolerance. VIF expresses the degree to which collinearity among the independent variables in a multiple regression model degrades the precision of an estimate. Tolerance is the reciprocal of VIF.

Ringle et al. (2015) regarded that VIF values < 2.5 indicate low correlation, but any value below 5 is acceptable. As for tolerance, any value below 0.2 indicates multicollinearity.

According to the collinearity statistics table (Table 7), the highest VIF value is $3.299 < 5.000$, and the lowest tolerance value is $0.303 > 0.200$, so there is no issue of multicollinearity between the independent variables and they can be included in the same regression model.

Table 7 Collinearity statistics

<i>Model</i>	<i>Collinearity statistics</i>	
	<i>Tolerance</i>	<i>VIF</i>
Gender (G)	0.860	1.163
Age (A)	0.598	1.672
Payment (Pa)	0.303	3.299
Financial Benefits (FB)	0.307	3.261
Incentive Package (IP)	0.330	3.033
Job Security (JS)	0.417	2.399
Rank (R)	0.338	2.957
Promotion (Pr)	0.327	3.061
Co-worker Relationships (CW)	0.476	2.100
Stress/Work–Family Conflict (S)	0.780	1.282
Working Conditions (WC)	0.563	1.775
Designation (Social Recognition) (D)	0.509	1.964

^aDependent Variable: Job Satisfaction.

4.7 *Coefficients and hypothesis testing*

The results of Table 8 are discussed in Sections 4.8–4.10.

Table 8 Coefficients

<i>Model</i>	<i>Unstandardised coefficients</i>		<i>Standardised coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
(Constant)	0.429	0.335		1.282	0.203
Gender (G)	−0.077	0.091	−0.048	−0.846	0.400
Age (A)	−0.048	0.045	−0.073	−1.063	0.291
Payment (Pa)	0.223	0.076	0.281	2.923	0.004
Financial Benefits (FB)	0.306	0.083	0.351	3.675	0.000
Incentive Package (IP)	0.013	0.072	0.017	0.183	0.855
Job Security (JS)	0.031	0.070	0.037	0.450	0.654
Rank (R)	0.021	0.081	0.023	0.255	0.799
Promotion (Pr)	0.234	0.094	0.230	2.486	0.015
Co-worker Relationships (CW)	0.135	0.076	0.136	1.770	0.080
Stress/Work–Family Conflicts (S)	−0.039	0.067	−0.035	−0.576	0.566
Working Conditions (WC)	0.013	0.065	0.014	0.199	0.843
Designation (Social Recognition) (D)	0.122	0.073	0.123	1.659	0.100

^aDependent Variable: Job Satisfaction.

4.8 *Demographic determinants*

4.8.1 *Gender*

The results indicate a non-significant relationship between gender and job satisfaction in the Lebanese construction sector ($p = 20.3\% > 5\%$). This means that the general perception of job satisfaction does not differ between men and women in this specific sector. Since $p > 5\%$, then H1 is not supported and is therefore rejected. This result is consistent with Mobley et al. (1994), Fields and Blum (1997), Westover (2012), and Rukh et al. (2015). However, this result is divergent with the findings of Roxburgh (1999), Clark (1997), Sousa-Poza and Sousa-Poza (2000), Blau and Kahn (1992), Westover (2012) and Hagedorn (1996), who found that females generally enjoy higher levels of job satisfaction in the US and the UK. Also, this result contradicts the results of Chiu (1998), Mason (2008), Roskam (2011) and Rukh et al. (2015), who claimed that males have higher job satisfaction levels.

4.8.2 *Age*

The results show a non-significant relationship between age and job satisfaction in the Lebanese construction sector ($p = 40\% > 5\%$). Thus, age is an inconsequential determinant of job satisfaction in this particular sector. Since $p > 5\%$, then H2 is not supported and is therefore rejected. This result is in accordance with Rukh et al. (2015) and Hosseini et al. (2014), who also found no difference in job satisfaction levels between employees of different ages. On the other hand, this outcome opposes Hickson and Oshagbemi (1999), who found a negative relationship between age and job satisfaction for teachers, while they found a positive relationship between age and job satisfaction for researchers. The result also opposes the findings of Krumm et al. (2013), Avolio and Waldman (1994), and Bedeian et al. (1992), who revealed a significant positive relationship between age and job satisfaction.

4.9 *Financial determinants*

4.9.1 *Payment*

The results point out a significant positive correlation between payment and job satisfaction in the Lebanese construction sector ($p = 4\% < 5\%$, $B = +0.223$). The result indicates that the higher the salaries of civil engineers in the construction sector, the higher their job satisfaction levels. Since $p < 5\%$, then SH1-1 cannot be rejected and is therefore accepted. This finding is consistent with the findings of Oshagbemi (1997), Arnolds and Boshoff (2001), Sweeney and McFarlin (2005), Kamal and Hanif (2009), Chimanikire et al. (2007), Rukh et al. (2015), and Pouliakas (2010). In addition, the result contradicts the findings of Sokolová et al. (2016) who did not reveal the same relationship in Czech Republic.

4.9.2 *Financial benefits*

The results indicate a positive relationship between financial benefits and job satisfaction in the Lebanese construction sector ($p < 1\%$, $B = +0.306$). The implications of such a result is that the engineers in this sector ask to get more financial benefits and consider

them a significant contributor in their job satisfaction. Since $p < 1\%$, then SH1-2 cannot be rejected and is therefore accepted. This result is consistent with Arnolds and Boshoff (2001), Sweeney and McFarlin (2005), Kamal and Hanif (2009), and Ammam (2018).

4.9.3 Incentive package

The results show a non-significant relationship between incentive package and job satisfaction in the Lebanese construction sector ($p = 85.5\% > 5\%$). Since $p > 5\%$, then SH1-3 is not supported and is therefore rejected. This finding is inconsistent with the results of most researchers, such as Frey and Stutzer (2002), Van Praag et al. (2004), Frey (2008), Pouliakas (2010), Arnolds and Boshoff (2001), Sweeney and McFarlin (2005), Kamal and Hanif (2009), Gibbons and Waldman (1999), Holmstrom (1979), Mas-Colell et al. (1995), and Rukh et al. (2015), who found a significant and positive relation between incentive package and job satisfaction. The reason for such a finding is the information deficiency about the incentive packages offered to the engineers in worldwide construction companies. This fact leads the engineers to underestimate this type of incentive.

4.9.4 Job security

The results show an insignificant connection between job security and job satisfaction in the Lebanese construction sector ($p = 65.4\% > 5\%$). A large number of engineers in construction companies are part-time contractors who alternate between one project and another, which means they are very unlikely to consider job security as an important aspect of their job satisfaction. Since $p > 5\%$, then SH1-4 is not supported and is therefore rejected. This result contradicts the findings of Ashford et al. (1989), Iverson (1996), Bhuian and Islam (1996), Abegglen (1958), Reisel et al. (2007, 2010), De Cuyper et al. (2009), Hu and Zuo (2007), Yousef (1998) and Mahmoud and Reisel (2014), who found a significant positive relationship between job security and job satisfaction.

4.9.5 Rank

The results show a non-significant connection between rank and job satisfaction in the Lebanese construction sector ($p = 79.9\% > 5\%$). Since $p > 5\%$, then SH1-5 is not supported and is therefore rejected. Similar to job security, it is noticed that the civil engineers do not consider the rank as a predictor of their job satisfaction. Their work as part-time contractors in the majority of cases is the main reason of this results. Therefore, they do not care about ranking, while they consider the benefits of a short-term contract is the main objective and advantage that they seek. This result goes against the findings of Ronen (1978), Miles et al. (1996) and Oshagbemi (1997), who reported a positive relationship between rank and job satisfaction.

4.9.6 Promotion

The results showed a significant positive correlation between promotion and job satisfaction in the Lebanese construction sector ($p = 1.5\% > 5\%$, $B = +0.234$). Since $p < 1\%$, then SH2-6 cannot be rejected and is therefore accepted. The objective here behind the promotion is the financial benefit. It seems that the engineers consider the promotion inside the organisation as a very important factor that provides them

high level of satisfaction. This result is consistent with Kosteas (2009), Knowles (1964), Ley (1966), Farris (1971), D'Souza (2002), Shields and Ward (2001), Freeman (1978), Ellickson and Logsdon (2002), Hooi (2012), Pergamit and Veum (1999), Rukh et al. (2015) and Porter et al. (1974).

4.10 Non-financial determinants

4.10.1 Co-worker relationships

The results show a non-significant relationship between co-worker relationships and job satisfaction in the Lebanese construction sector ($p = 8\% > 5\%$). Since $p > 5\%$, then SH2-1 is not supported and is therefore rejected. The findings contradict those of Watson (2009), Ribelin (2003), Avolio and Waldman (2004), Fultz et al. (2018), Hogan (2005), Trempe et al. (1985), Brown et al. (1998), Ellickson and Logsdon (2002), and Rukh et al. (2015), who found a positive link between job satisfaction and relations with co-workers.

Most respondents who answered the questionnaire are young, and they are only present on site. They have no regard for co-worker relationships, preferring to accomplish their task and move on to the next.

4.10.2 Stress/work–family conflict

The results show a non-significant relationship between stress/work–family conflict and job satisfaction in the Lebanese construction sector ($p = 56.6\% > 5\%$). Since $p > 5\%$, then SH2-2 is not supported and is therefore rejected. These findings contradict Armstrong et al. (2015), Özbağ and Çiçek (2014), Blomme et al. (2010), Halkos and Bousinakis (2010), Manzoni and Eisner (2006), Rukh et al. (2015), and Lu et al. (2017), who found a significant negative link between stress/work–family conflict and job satisfaction. Concerning the work–family conflict, it seems that the engineers tend to separate personal family life from their professional career, enabling them to operate at maximum capacity regardless of family conflicts. In the construction industry, the majority of engineers under 30 years of age consider stable career conditions satisfactory enough. They are unaffected by stress triggers as long as their confidence in their position is unwavering.

4.10.3 Working conditions

The results show a non-significant relationship between working conditions and job satisfaction in the Lebanese construction sector ($p = 84.3\% > 5\%$). Since $p > 5\%$, then SH2-3 is not supported and is therefore rejected. The result opposes those of Demet (2012), Stallworth and Kleiner (1996), Robbins (2005), Greenberg and Baron (1995), Villotti et al. (2012), Rukh et al. (2015), and Fultz et al. (2018), who noted a positive relation between working conditions and job satisfaction. The results are in line with Arnold and Boshoff (2001) and Albattah et al. (2016), who noticed how employees often take for granted their working conditions and consider it the company's duty to provide favourable conditions. As a result, employees might not associate working conditions with job satisfaction.

4.10.4 Designation (social recognition)

The outcome shows a non-substantial connection between designation and job satisfaction in the Lebanese construction sector ($p = 10\% > 5\%$). Since $p > 5\%$, then SH2-4 is not supported and is therefore rejected. The findings contradict with the findings of Herzberg et al. (1959), Locke (1976), Josias (2005), Danish and Usman (2010), Ali and Ahmed (2009), and Amarasena et al. (2015), who realised a significant positive relation between designation and job satisfaction. Similar to before, engineers and workers would separate social life from professional life, concentrating on the task at hand instead of focusing on social trivialities. Additionally, personal temperament varies between individuals, where some people pay no regard to their social image.

5 Conclusion

This research examines the determinants of job satisfaction in the Lebanese construction sector.

The sample consists of civil engineers currently employed by construction companies in Tripoli, Jbeil, and Beirut. The most prominent determinants according to the literature are: gender, age, payment, financial benefits, incentive package, job security, rank, promotion, employee relations, stress/work–family conflict, working conditions, and designation. The multiple regression analysis reports a significant positive relationship between payment, financial benefits, promotion, and job satisfaction in the Lebanese construction sector. Thus, this research implies high correlation between job satisfaction and the following: wages and salaries, financial benefits, and fair opportunities for promotion. The results also showed nonsignificant relationships between gender, age, incentive package, job security, rank, co-worker relationships, stress/ work–family conflict, working conditions, designation (social recognition), and job satisfaction. Managers, directors, and decision-makers in construction field can utilise the results of this study to improve job satisfaction and, ultimately, organisation performance.

The findings shed light on how perceptions of workers in this sector regarding their job satisfaction are unaltered by gender and age. Furthermore, the glaring disparity between the findings of this study and previous studies could be attributed to the characteristics of the engineering occupation, the discrepant responses to other factors, and the nature of associations regarding job satisfaction that are dissimilar in different countries and socioeconomic contexts.

Even though this study contributes to the field of job satisfaction, especially in the construction sector, it suffers the following limitations:

This research considers the most prominent factors that affect job satisfaction according to the literature, while excluding other factors like management styles, marital status, etc. The researcher implements the non-probability convenience technique because of the futility in reaching the entire population. Respondents provide self-reported feedback, which may lead to bias. For convenience, respondents within specific cities (Tripoli, Beirut, and Jbeil) received the questionnaires, whereas engineers and employees working in other cities did not participate, jeopardising the comprehensive nature of the results. The exact number of the population is impossible to extract from the Engineering Syndicate because of complications that cannot be resolved over a short

period of time. And finally due to time constraints, the research question is addressed in a cross-sectional study instead of a more comprehensive longitudinal study.

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