



Munich Personal RePEc Archive

The effect of crisis on employees' stress and dissatisfaction

Halkos, George and Bousinakis, Dimitrios

Department of Economics, University of Thessaly

February 2016

Online at <https://mpa.ub.uni-muenchen.de/70107/>

MPRA Paper No. 70107, posted 18 Mar 2016 06:34 UTC

The effect of crisis on employees' stress and dissatisfaction

George Halkos and Dimitrios Bousinakis

Laboratory of Operations Research, Department of Economics,
University of Thessaly, Volos, Greece

Abstract

This study, using a random sample of employees working in the private and public sectors, investigates the effect of crisis on job stress and dissatisfaction. Two stage cluster sampling is first used to collect primary data and relying on our sample and the collected variables we model for the first time a number of qualitative variables as features representing crisis (especially stress and dissatisfaction but also migration, reprioritizing and behavioral changes). Logistic regressions are used next presenting us with many useful elements concerning the function of stress, dissatisfaction and supportive elements and offering the corresponding probability of the effect on employees during the crisis. There are many new findings like, among others, the acceptance of salary reductions, number of working hours, economic migration, behavioral changes between management and employees, reprioritizing, and minimization of career opportunities.

Keywords: Crisis; Stress; satisfaction; dissatisfaction; migration; reprioritizing; behavioral change; logistic regression.

JEL codes: J01; J08; J61; J81; M50; M54; O15.

1. **Introduction**

In our previous research effort the effect of stress and satisfaction on productivity was investigated (Halkos and Bousinakis, 2010). Our empirical results confirmed that productivity is seriously affected by the two qualitative factors, stress and satisfaction. As expected, in the former, increased stress leads to reduced productivity and in the latter, increased satisfaction leads to increased productivity. There is no doubt that modern organizations have to cope with stress and job satisfaction of their employees with these two elements one affecting the other and if both function well could lead to positive results for employees' work and organization.

In this study our effort focuses on the investigation and analysis of the effect of crisis on the quality factors of stress and dissatisfaction on employees. We concentrate on the effects of crisis on various socio-economic issues like migration, reprioritizing and behavioral changes. Using two-stage cluster sampling and a random sample of 172 employees in the private and public sector, their effects are investigated on the functioning of companies and/or organizations. We focus our attention on migration, salary, career and creativity. In this new research the state of stress is a result of the interaction of the environment's economic crisis. Financial and social elements (financial status, education level, age, marital status etc) have affected employees but new elements appeared like unemployment, austerity and migration.

Economic crisis in our country (but also worldwide) radically affects the lower social and economic classes while provoking huge (economical, psychological, physical, mental) problems on people. Our research is focused on problems of employees, the effect of which are not directly visible such as people satisfaction on their job and daily

life, migration, behavioral changes and reprioritizing. These problems affect productivity and work evolution, creativity and the decision for working changes. They lead to alienation, indifference, isolation and job stress. These days crisis also strikes working conditions resulting to negative behaviors towards work. The work maintenance becomes first and top priority and the employees are forced to handle serious economic consequences (e.g. negative changes in labor rights, reduced salaries, loss of creativity, bad working relations with management team but also with the rest of working teams).

The structure of the paper is the following. The next section defines, discusses and reviews the existing relevant literature on organizational crisis, stress, dissatisfaction and other effects of crisis while section 3 presents the sampling framework and the adopted methodology for the analysis of the primary data collected. The empirical results derived are presented and discussed in section 4. The last section concludes the paper and comments on the policy implications of our empirical findings.

2. Relevant literature and discussion on organizational crisis, stress and dissatisfaction

2.1 Organizational crisis

The effect of crisis is more intense on external satisfaction (wages, working conditions, working security) rather than on internal satisfaction (opportunities for further education, career evolution, creativity, independent action). In both cases crisis led to minimize job satisfaction and maximize job stress.

Apart from the crisis we could also define as **organizational crisis** anything that can agitate, question and change the occurring economical and social conditions. In addition, it could affect companies, employees, products and threaten the economical as well as the psychological side and their health.

Seeger et al. (1998) define organizational crises as “specific unexpected and non routine events or series of events that create high levels of uncertainty and threat or perceived threat to an organization’s high priority goals”. Venette (2003) defines crisis more generally as “a process of transformation where the old system can no longer be maintained”. According to Mitroff (2005, p.36) crises are often unexpected due to cognitive limits as we cannot predict everything and we are able to follow only a limited number of tasks, threats and priorities; the events/trends that we are able and do predict may often be moderated and thus prevent them from turning to crises; and denial and other psychological responses provide protection for our emotions.

Organizational crises are often caused by the complexity of systems and organizations but also from incorrect or disputed decisions as well as from the interaction between technological systems and people who are trying to manage them (Pauchant and Mitroff, 1992).

Nowadays, the meaning of crisis is used to describe situations which create the feeling of general threat and the pathology of a reality that has gone far beyond normal limits. From an economic point of view the definition of crisis is a situation where the economy is characterized by a ceaseless reduction of economic activity, meaning that basic factors such as labor, GDP (Gross Domestic Product) and public debt face difficulties.

2.2 Stress, dissatisfaction and other effects of crisis

Stress is associated with the function of the nervous system and leads to a change in respiratory rate, dry mouth, sweating, etc. Therefore stress refers to psycho-physiological, behavioral and emotional changes that are generated in response to a

conscious or unconscious danger. We could say that is a normal action of any living organism if it is directly linked to its survival. This action can be positive or negative. For that reason Selye (1956) refers to positive and negative stress. Stress is considered to be positive and beneficial when besides the general disruption, there are possibilities of accomplishment of the attempt.

Karasek (1979) supports a theoretical model, where the three key stress factors are the work that the employee is required to perform, the initiatives that an employee takes and the social relations with colleagues at all levels, which must operate interactively to decisively influence the employee. Warr (1990) considers that each of Karasek's work factors must exist at an appropriate analogy so as not to create stress. In his research the vitamin model suggests that job characteristics affect mental health. He inserts ten general categories of job characteristics, grouping together the main variables. Warr's vitamin model relied on the similarity that as vitamins are necessary for physical health, such similarities may be viewed with the environmental features on the mental health and welfare of individuals.

Siegrist (1996) suggested a model of adverse health effects of high-effort/low-reward conditions. According to the effort-reward imbalance model, the focus is on reciprocity of exchange in occupational life where high-cost/low-gain conditions are considered particularly stressful. The term effort has two stages: the extrinsic and intrinsic.

Satisfaction and dissatisfaction are regulating factors for stress. The theories during the neo-classical period (1920-1950) supported that there existed a cause-effect relationship between satisfaction and productivity. This was the cause why corporations

applied various ways to increase employee's productivity. Aziri (2011) and Zhu (2013) provide literature reviews on job satisfaction.

Locke (1984) considers that satisfaction and dissatisfaction from work are associated with the person's value system with job satisfaction being a positive emotional response to the project from the assessment that covers or cover allows the working values of the person. Conversely, job dissatisfaction stems from the cancellation of working values of the person.

As recent studies have shown, there is a connection between intention to leave one's job and job dissatisfaction (Heslop et al, 2002; Brief and Weiss, 2002; Clugston, 2000). Halpern (1999) supports that employee turnover because of job dissatisfaction, has caused company costs in terms of recruitment, selection and training new employees. Origo and Pagani (2009) discuss job satisfaction and flexibility in Europe, Humpert (2016) considers job satisfaction in the USA and Ghinetti (2007) examines the differential of public and private work satisfaction in the case of Italy. Similarly Ölçer and Florescu (2015) discuss job dissatisfaction in terms of psychological empowerment and performance at work.

Job dissatisfaction can bear a negative outcome in the productivity of a company thus creating an added cost to a company. It is a factor that can also create physical and psychosomatic symptoms creating problems in personal lives of employees. Job satisfaction as a notion is identified with the fulfillment of desires. The correlation between employees' objectives and organization goals is the "balance point" of satisfaction.

The essential element for a successful company is the maintenance of their employees' satisfaction. Work related stress is a central factor to job satisfaction. When stress works as a motivator then it results to creativity and satisfaction. When stress works as a negative factor it results to aggression and dissatisfaction. Job satisfaction via job motivation can forestall stressors factors.

Finally with the globalization of economic growth, a number of alternations in the employment have been happened with either comparative benefit and steady or uncertain employment featured by instability and low wages (Ferrie et al., 1999; Paoli, 1997). Structural unemployment, underemployment and early retirements have increased and continue to raise leading to higher stress, job insecurity and more job dissatisfaction.

Migration is an ancient phenomenon determined from different factors and depending on circumstances occurring at that period. It can be considered as displacement of people from one region or country to another for permanent or temporary installation. Bibliography includes many types of migration. We are referring to the most important types: internal or external, voluntary or involuntary, primary or secondary, complete or incomplete (refuges included), conservative or innovating, short term or long term, temporary or permanent and finally continental or intercontinental (when it happens towards the countries of the same continent or of another).

The effects of migration are equally noticed at the country receiver and at the country sender. Concerning the country sender there are some advantages like the decrease of unemployment and possibly the support of balance of payments because of money inflow through remittances. At the same time migration increases wages of the sender country because labor supply is reduced.

On the other hand, the consequences can be negative since one of the most productive part of work force, important for the economic development of the country, is weakened. This happens because age groups who choose to migrate belong to the active work forces of the country. Moreover migration results in the decrease of the percentage of child birth which simultaneously affects the increase of percentage of aging.

Finally, crisis can be a great opportunity of **personal introspection** and **reprioritizing**. This opportunity may be a chance to diminish psychological phenomena like depression. The redefinition of personal goals, prioritizing, as well as the achievement of balance between personal and working life, will help the employee to cope with the difficulties of this period.

3. Research design and proposed methodology

3.1 The adopted methodology

In order to analyze the relationship between crisis and job satisfaction/dissatisfaction, reprioritizing, behavioral changes and migration we performed a study on a random sample of 172 individuals working in private enterprises and public organizations (excluding non-profit organizations) in Greece. Our sampling frame was the list of all companies operating throughout the country as was made available by ICAP. Table 1 presents a summary of this information.

To select a random, representative and as large as possible sample the method of two-stage cluster sampling was adopted. That is we first selected our primary units and then relying on them secondary units were selected. Cluster sampling necessitates the separation of the population into groups of elements with each element to belong to only one cluster. That is, first we utilized a frame consisting of all employees in private and

public sectors in middle and high positions and with the use of random numbers a random sample of 45 companies was chosen. Next a random sample from each of the 45 sampled clusters was selected.

Table 1: The sampling frame used in our analysis

A/A	Sector	Code	Total number of companies	Total number of employees	Sampled companies	Sampled employees
1	Agriculture & related	A-B 01	211	2.517	2	9
2	Fish farming	A-B 05	97	3.002	1	6
3	Manufacturing (food-drinks)	D 15	989	46.917	3	10
4	Manufacturing (tobacco)	D 16	4	1.776	1	2
5	Manufacturing (textile-leather)	D 19	62	1.536	1	3
6	Manufacturing (chemicals)	D 24	251	17.663	1	2
7	Constructions	F 45	1494	24.881	2	9
8	Retail trade	G 52	1014	71.077	3	8
9	Cars trader-leasing	G 50	770	20.282	3	15
10	Telecommunications	I 64	105	29.473	3	12
11	Financial services	J 65	22	58.709	5	13
12	Insurance	J 66	195	6.483	2	9
13	Vehicles and equipment	KMNO 71	226	2.315	2	11
14	Information technology	KMNO 72	391	9.049	2	9
15	Other sectors	KMNO 74	1671	49.873	5	26
16	Education	KMNO 80	211	8.137	2	7
17	Health	KMNO 85	279	16.685	7	21
	Total		7.992	370.375	45	172
	Total private companies				34	128
	Total public companies				11	44

Source: ICAP (personal communication)

3.2 *The questionnaire*

In our research effort we try to gather information regarding stress, satisfaction and dissatisfaction levels and the associated parameters interconnected to these factors. Various variables were taken into consideration like socio-economic (marital status, income, education level) and other (non-numerical) qualitative variables like migrate, creativity and reprioritizing. Although the new questionnaire was simple a pilot study

was carried out first in 10 employees (around 6% of the final sample) with a small number of modifications made before the final version. The data collection was performed in a month time (in February 2015) and solely by means of personal interviews. Participants replied to a number of statements using a 5-point Likert scale with 1 corresponding to “very little” and 5 to “very much”. Table 2 presents the frequencies and the percentages of the socioeconomic variables of our study.

Table 2: Frequencies and percentages of the socioeconomic variables

Variables		Frequency	Percent	Cumulative Percent
Sex	Male	61	35,5	35,5
	Female	111	64,5	100,0
Age Classes	23-35	56	32,6	32,6
	36-45	71	41,3	73,8
	46-55	39	22,7	96,5
	56-67	6	3,5	100,0
Marital status	Married	98	57,0	57,0
	Single	59	34,3	91,3
	Widow(er)	3	1,7	93,0
	Divorced	12	7,0	100,0
Children	0	78	45,3	45,3
	1	33	19,2	64,5
	2	55	32,0	96,5
	3	6	3,5	100,0
Educational level	High school	26	15,1	15,1
	College	21	12,2	27,3
	Bachelor	87	50,6	77,9
	Master	33	19,2	97,1
	PhD	5	2,9	100,0
Work Experience	0-5	16	9,3	9,3
	6-10	28	16,3	25,6
	11-15	49	28,5	54,1
	16-20	27	15,7	69,8
	21-25	23	13,4	83,1
	26-30	19	11,0	94,2
	31-35	8	4,7	98,8
	36-40	2	1,2	100,0
Income classes	0 - 12000 €	42	24,4	24,4
	12 - 25000 €	85	49,4	73,8
	25 - 40000 €	30	17,4	91,2
	40 – 55000 €	9	5,2	96,4
	55000 + €	4	2,3	98,7
	Missing	2	1,2	100,0
Region	Capital	97	56,4	56,4
	Large cities	24	14,0	70,3
	Urban Area	40	23,3	93,6
	Suburban	4	2,3	95,9
	Rural Area	7	4,1	100,0

3.3 *The proposed econometric model formulation*

After coding the basic variables and the corresponding answers of the interviewees, we have proceeded with the examination of the effect of crisis on employees based on those variables. More specifically as dependent variables a number of proxies of the effect of crisis on employees are used like job satisfaction, reprioritizing, behavioral changes and migration. As independent variables the socio-economic as well as various other qualitative variables are considered.

In our model specifications we consider the dependent variables (Y_i ; in our case *job satisfaction, reprioritizing, behavioral changes and migration*) as dichotomous variables taking the value of 1 with probability Θ and the value of 0 with probability $1-\Theta$.¹ In this way we have a discrete probability distribution of the form:

$$\Pr(Y_i, \Theta_i) = \Theta_i^{Y_i} (1 - \Theta_i)^{1-Y_i} \quad (1)$$

More specifically, the logistic cumulative density function in the case function F has the form Λ of logistic regression may be expressed as

$$\Pr(Y_i = 1) = F(x_i' \beta) = \frac{1}{1 + e^{-x_i' \beta}} = \Lambda(x_i' \beta) = \frac{e^{x_i' \beta}}{1 + e^{x_i' \beta}} = \frac{1}{1 + e^{-x_i' \beta}} \quad (2)$$

with $\Pr(Y_i = 1 | x_i, \beta) = F(x_i' \beta)$ and $\Pr(Y_i = 0 | x_i, \beta) = 1 - F(x_i' \beta)$

and $E(Y_i) = 1 * F(x_i' \beta) + 0 * [1 - F(x_i' \beta)] = F(x_i' \beta)$

Together with the parameters' estimation we calculate the Odds Ratios (OR) being the ratio of the probability that the dependent will take place (event E that $Y=1$) divided by the probability

¹ For more details on the properties and applications of logistic regression see Halkos (2006, 2011).

that the dependent will not take place (1- event E). That is:

$$\text{Odds}(E | X_1, X_2, \dots, X_n) = \frac{\Pr(E)}{1 - \Pr(E)} \quad (3)$$

In this way the form of the logistic model is defined as

$$\text{logit} [\Pr(Y=1)] = \log_e[\text{odds}(Y=1)] = \log_e \left[\frac{\Pr(Y=1)}{1 - \Pr(Y=1)} \right] \quad (4)$$

In our case we propose four model specifications. In the 1st model we examine if job satisfaction (as dependent variable) is influenced by a number of explanatory socio-economic and psychological variables related to the crisis as income, career opportunities (possibilities of career development), migration, reprioritizing and ambition. In the 2nd model, we look at reprioritization due to crisis (including reduced income <50%) (as dependent variable) and if it is affected by a number of qualitative independent variables associated with the crisis such as work press, job satisfaction, job dissatisfaction (in relation to salary-benefits), stress about job insecure, stress about salary, stress about career opportunities and job effect on personal life.

In the 3rd model we inspect if crisis, which may lead to changes in behaviour, in relationships, in partnerships (as dependent variable) is influenced by a number of explanatory variables like job satisfaction, job dissatisfaction (in relation to salary-benefits), stress about working hours, stress about job insecure, stress about further education, stress about labour relations, stress about salary, stress about career opportunities and stress about business changes (because of crisis). Finally, in the 4th model specification we explore if migration (as dependent variable) is affected by variables such as educational level, ambition, stress about work environment, salary, labour relations and importance of creativity.

For these model specifications various dummy variables were constructed in relation to the ranking within the organization (employee, supervisor, manager) as well as based on different age groups.²

4. Empirical Results

Logistic models results are shown in Table 3 with individual statistical significance of parameters' estimates being presented by the Wald and the corresponding P-values. In the 1st model and in the case of using socioeconomic variables as independent variables we see that *income* and *migration* are statistically significant in all levels of significance while *reprioritizing* and *career opportunities importance* are statistically significant at the level of 0.1. *Ambition* and the constant term are statistically insignificant.

In the 2nd model formulation *stress about job security* is statistically significant in all levels of significance while *dissatisfaction due to salary* and *work press* are statistically significant in the levels of 0.05 and 0.01. *Job satisfaction*, *stress about salary* and *stress about career opportunities* are statistically significant at the level of 0.1. The constant term and *job affects personal life* are statistically insignificant.

In the 3rd model specification, *job satisfaction*, *stress about further education/training* and *stress about changes of crisis* are statistically significant in all levels of significance. The constant, *job dissatisfaction*, *stress about job security*, *stress about labor relationships* and *stress about working hours* are statistically significant at the level of 0.05 and 0.1 while *stress about salary* is statistically significant at the level of 0.1. *Stress about career opportunities* and *work press* are statistically insignificant.

Finally, in the 4th model the constant term is statistically significant in all levels of

² These variables were used in the logistic regressions and were insignificant. It is worth mentioning that in our current analysis we have not used factor analysis as in Halkos and Bousinakis (2010), but instead we have concentrated in the various specific variables of interest.

significance while *education level*, *stress about work environment* and *importance of creativity* are statistically significant at the levels of 0.1 and 0.05. *Salary stress* and *labor relations* are statistically significant of the level of 0.1 while *ambition* is statistically insignificant.

The Nagelkerke R square is a predictability measure of the fitted models. Assessing the model fit we compare the log likelihood statistic (-2 log) for the fitted model with the independent variables with this value corresponding to the model with only the intercept (reduced model). The likelihood ratio statistic is quite high in all cases rejecting the null hypothesis and concluding that at least one of the parameters coefficients (β) is statistical significant.

Next we may compute the difference which estimates the percentage change (increase or decrease) in the odds for every 1 unit change in X_i holding all the other X 's fixed. Being more specific, in case of the 1st model the coefficient of *income* is 1 implying that the relative risk of this particular variable is 2.718 and the corresponding percentage change is 1.718. This means that in relation to income the odds of persons' ability increases satisfaction (high income-high satisfaction) by almost 172% ceteris paribus (we see the importance of income especially during crisis). Similarly in the case of *migration* the estimated coefficient is -0.316 which implies that the relative risk of this particular variable is 0.729 and the corresponding percentage change is -0.271. This means that in relation to migration the odds of persons' ability to migrate decrease their satisfaction. This makes sense because if satisfaction was high there will not be any reason to migrate. In the case of reprioritizing (reduced earnings) the corresponding percentage change is -0.329 implying that in relation to reprioritizing (reduced earnings)

satisfaction is decreasing by about 33%. Salaries are reduced because of the crisis and this leads to low satisfaction. In the case of career opportunities the corresponding percentage change is 0.421 implying that career opportunities persist despite crisis, a strong motivation for the employee.

In the 2nd model increasing the *work press* decreases *reprioritizing* (dependent variable) about 37%. We see that the heavy workload leaves no space for change and redefining life priorities. In relation to *job satisfaction* the odds of persons' ability increase reprioritizing by almost 32%. If employees get job satisfaction, they would like to readapt their life. When job dissatisfaction increases reprioritization decreases by almost 29%. Therefore, if an employee is dissatisfied from his/her job, (s)he does not like to change life! How can we explain this? The logical is the opposite! At this point the explanation is the disappointment or even the depression! Employees are disappointed and passive in life. They even doubt if they will be working tomorrow.

When *stress because of job security* increases, the reprioritizing increases too approximately by 58%. Therefore, if employees do not feel secure in their job and are stressed about it, this can motivate them to readjust their lives. If we compare this result and the previous we can see that stress is stronger than dissatisfaction. The employee is motivated to change his/her life by stress but not by dissatisfaction. In relation to *stress about salary*, the odds of persons' ability to influence the reprioritizing decrease by almost 26%. Therefore the doubt on stress about salary is not capable of leading an employee to change and redefine his/her life. Increase of *stress about career opportunities* leads to an increase of reprioritizing about 28%. So if career is important, the employee is motivated to change his/her life. The last three examples lead us to the

conclusion that, in order to redefine a person's priorities in his/her life, the employee primarily focuses on his/her career opportunities and job security and secondary on salary (money is not the most motivated factor).

In the case of 3rd model an increase in *job satisfaction* leads to a reduction of the influence of behavior and relationships by 60%. So the employee who is satisfied does not change behavior. We can observe this element in other countries with high job satisfaction (e.g. Sweden) where the behavior of people is much better than in other countries with low satisfaction (e.g. Greece). Similarly, an *increase in job dissatisfaction* leads to increase in the influence of behavior and relationships by 72%. So the lack of job satisfaction affects the behavior of the employee and the labor relations as well as cooperation with other colleagues or teams. This confirms the previous estimate.

An increase in *stress about working hours* leads to increase in the influence of behavior and relationships by 110%. Long working hours and stress can lead to many social and psychological issues (e.g. increasing divorce, frustrations, nerves, anger, lack of mood, fatigue, burnout, etc). An increase in *stress about job security* leads to increase the influence of behavior and relationships by 81%. So the employee who is nervous about his/her job (feeling insecure about his/her working future) has changes in behavior and relationships (and this is a phenomenon of the crisis). A grow in *stress about further education/training* leads to increase in the influence of behavior and relationships by 140%. So employees, who are anxious about the possibilities of further training or education, have changes in behavior and relationships. The more the crisis deepens and employees have no retraining and improvement on their knowledge and skills, the more they will be affected and change attitudes and labor relationships.

Table 3: The logistic regression results

Variables	1st model		2 nd model		3 rd model		4 th model	
	Estimates	OR	Estimates	OR	Estimates	OR	Estimates	OR
Constant	2,196	8,989	-0,493	0,611	3,618	37,25	-4,14	0,016
Wald	2,178		0,31		4,401		12,025	
P-value	0,14		0,578		0,036		0,001	
Income	1,000	2,718						
Wald	7,05							
P-value	0,008							
Migration	-0,316	0,729						
Wald	3,811							
P-value	0,0051							
Reprioritizing (<50%)	-0,398	0,671						
Wald	3,06							
P-value	0,08							
Career opportunities Importance	0,352	1,421						
Wald	3,018							
P-value	0,082							
Ambition	-0,297	0,810					0,238	1,269
Wald	2,289						2,139	
P-value	0,130						0,144	
Work press			-0,459	0,632	0,134	1,143		
Wald			4,661		0,379			
P-value			0,031		0,538			
Job satisfaction			0,277	1,319	-0,912	0,402		
Wald			3,009		7,347			
P-value			0,083		0,007			
Dissatisfaction due to salary			-0,349	0,705	0,54	1,717		
Wald			5,743		5,225			
P-value			0,017		0,022			
Stress about job security			0,459	1,582	0,592	1,808		
Wald			6,94		4,669			
P-value			0,008		0,031			
Salary Stress			-0,296	0,744	-0,512	0,6	0,259	1,295
Wald			3,085		2,686		3,417	
P-value			0,079		0,1		0,065	
Stress about Prof. Dev.			0,249	1,283	-0,399	0,671		
Wald			1,433		2,015			
P-value			0,099		0,156			
Job affects personal life			0,250	1,283				
Wald			1,433					
P-value			0,231					
Stress about Working hours					0,739	2,095		
Wald					5,874			
P-value					0,015			
Stress (Further education/training)					0,876	2,401		
Wald					10,291			
P-value					0,001			
Stress about labor relations					-0,558	0,572		
Wald					4,253			
P-value					0,039			
Stress about change/management					-0,616	0,54		
Wald					7,549			
P-value					0,006			
Education level							0,405	1,5
Wald							5,584	
P-value							0,018	
Stress about Job environment							0,291	1,337
Wald							3,886	
P-value							0,049	
Stress (relations Employees-MNG)							-0,269	0,764
Wald							2,766	
P-value							0,096	
Creativity Importance							0,34	1,405
Wald							4,342	
P-value							0,037	
Nagelkerke R²	0.19		0.21		0.38		0.15	
Likelihood Ratio	105.321		180.493		88.122		194.921	

An increase in *stress about labor relations* leads to reduction of the influence of behavior and relationships by 43%. So the employee who is anxious about the relationships with the organization's management has no behavioral changes. An increase in *salary stress* leads to a reduction of behavior and relationships by 40%. So employees that are anxious about their salaries have negative reactions in their behavior and relationships.

A rise in *stress about changes and change management* leads to reduction of the influence of behavior and relationships by 46%. So the employee can get nervous in front of changes made both at work and in his/her area, or more generally in the country but does not change behavior and relationships. This may happen due to two reasons; namely employee does not change behavior for selfish reasons and employee does not change behavior because (s)he understands the importance and necessity of a change. We cannot be sure of which one of these two explanations occurs in this survey and this is likely to be an area for future research!

In the 4th model and for migration via *education* the odds of persons' ability to raise migration increase by almost 50% *ceteris paribus*. So a high level of education leads to higher immigration where those who migrate from their country are people with high academic and scientific level. In relation to migration via *work environment* the odds of persons' ability to increase migration increases by almost 34% all others remaining fixed. So the more the importance given by someone in the work environment increases, the greater the case to migrate (the maleficent environment of work in the country through the crisis leads many people to the choice of migration).

In relation to migration via *creativity*, when creativity increases migration increases too by almost 41%. So the more the employee emphasizes on creativity, the more (s)he seeks to emigrate. The lack of desire for creativity is an immigration factor. An increase of *Salary-Benefits* leads to an increase of migration by almost 30%. So the more the employee emphasizes on salary-benefits, the more (s)he seeks to emigrate. The possibility of higher salary-benefits abroad is a migration factor. A rise in *labor relations* leads to reduction of migration by almost 24%. If an employee has good working relationships (with management, colleagues and generally with the agency working) the reasons to emigrate reduce.

5. Conclusions and Policy Implications

Our results showed us that the crisis seriously affects qualitative factors like migration, reprioritizing, behavior and satisfaction. As expected, increased income leads to increased satisfaction and increased satisfaction leads to decreased migration. On the other hand low wages, high education level and the importance of creativity lead to migration.

Following this, logistic regression presented us with a lot of useful elements concerning the function of stress, dissatisfaction, migration, reprioritizing, behavioral changes and supportive elements on crisis. Initially, it showed us the effect of financial and social elements such as income and career opportunities, importance of creativity and education level on migration, in which matter crisis leads to reprioritizing. Thus, education level and creativity affect migration more than salary and finally stress about job security is more important than work press. So, crisis makes people to work harder

and insecurely (due to very high unemployment!). This is one of the highest influences of crisis on reprioritizing.

Another element that arose was the change of behavior. High job dissatisfaction has many effects to the behavior and labor relations. This is a very important element which may lead us to the explanation of many social phenomena like violence, divorces, burnout, etc.

Then the influence of crisis on change of behavior was accentuated, focused on three elements. First, when work has dissatisfaction this has a negative effect on behavior (60-72%). Second, stress about work security connects with behavior (when we do not know if we will work tomorrow it is easy to understand it). And third, stress about possibilities for further education effects to behavior! This is explained because of high education level of employees in our questionnaire (over 73% has a Bachelor degree and higher qualifications).

Relying on our sample, we could mention some interesting points. The age and marital status of employees is a particularly important factor related to migration, because as age increases, migration is reduced (but remains at high levels). The younger the age is, the higher the ambition. The employee who has decided to leave his/her country will migrate in any case.

Finally, we ascertain that income is not the main explanation and justification for migration. Employees in our questionnaire have an income level of 12.000-40.000€ (68%) but they want to migrate in a percentage of 43-50%. For these people (with good income and high education level) there are important things like creativity, job security, career opportunities, possibilities for further education and good labor relations.

Policy implications and necessary steps

Relying on our empirical results a number of steps are necessary. In particular, a very clear job role is needed in order to avoid roles ambiguities or role conflicts. Job rotation is important in order to avoid making work boring and for the management team to have more solutions in cases of absence. Restructuring of the workplace according to the needs is necessary and it is important the employees to know that the management of the company cares for them and they are an undivided and whole part of the organization.

It would be profitable even in the long-run the continuation of education and training of the employees. At the same time, one of the most significant components in business operation is the employees' morale. Positive working conditions can reduce job stress and job dissatisfaction. The wider job environment, create moods and behaviors and finally lead to attitudes.

The work security especially during crisis is a very important factor that can affect the efficiency and performance of the teams and the whole organization. Wheatley (2003) claims that independency may lead to systems' stability and their harmony. So greater independent action (especially in relation to work methods and ways) can bring out and channel the ability and dynamic of employees. But team building and communication among teams is a very good motivator factor with creativity and innovation being factors able to lead to a mutual profitable development of workers and organizations. Many companies and many people took advantage of the crisis through creativity and innovation and driven to development and progress.

Moreover, legislative regulations in labor relations are needed so that there is greater security to the employee. We may also see positively reprioritizing for all of us

and refocusing (on the part of organizations) with response to the crisis as an opportunity from all sides. Reconfiguration of corporate culture and emphasizing on corporate social responsibility with avoidance of "temptation" (for enterprises) to hold crisis as exploitation of employees may also help.

We may be of the need for creation of motivates to avoid labor migration from high potentials employees and policies aimed at restoring and maintaining full employment and best change management that exist in all systems due to crisis. The role of the leader in introducing change is vital and necessary to explain the reasons, the purpose, and the ways of change. It is useful for any change to be tested on smaller channels of the organization and on a limited scale (Halkos and Bousinakis 2012).

Awareness of institutions and employees of the function and significance of co-evolution together with fairer economic policy in order to reduce inequalities is important. Finally, following Piketty (2014) progressive taxation of capital so that capital cannot be enlarged faster than the increase of production may also help.

Limitations and Future extensions

Additional research should focus on the ways to decrease the consequences of crisis. The effect of crisis on social disparities as well as the results of these disparities to people could be the issue of a future research. "The price of inequality" written by Stiglitz (2012) could give us a good motivation. Stiglitz mentions that the crisis showed that financial systems are not only unstable and ineffective but also unfair. Some were affected by the impact of crisis and some became rich. Finally, more qualitative factors affecting crisis could be explored like psychological factors (disappointment, depression etc).

Acknowledgements

We thank the ICAP Group Hellas for providing the database on the companies surveyed in our work.

References

Aziri B. (2011). Job Satisfaction: A Literature Review. *Management Research and Practice*, **3(4)**: 77-86.

Brief A.P. and Weiss H.M. (2002). Organizational behaviour: Affect in the workplace. *Annual Review of Psychology*, **53**: 279-307.

Clugston M. (2000). The mediating effects of multidimensional commitment on job satisfaction and intent to leave. *Journal of Organizational Behavior*, **21**: 477-486.

Ferrie J., Marmot M., Griffiths J. and Ziglio E. (Eds) (1999). *Labour market changes and job insecurity: A challenge for social welfare and health promotion*. WHO Regional Publications, Denmark.

Ghinetti Paolo (2007). The Public–Private Job Satisfaction Differential in Italy. *LABOUR* **21(2)**: 361–388.

Halkos G.E. (2006), *Econometrics: Theory and Practice*. Giourdas Publications, Athens.

Halkos G.E. (2011). *Econometrics: Theory and Practice: Instructions in using Eviews, Minitab, SPSS and Excel*. Gutenberg: Athens.

Halkos G. and Bousinakis D. (2010). The effect of stress and satisfaction on productivity. *International Journal of Productivity and Performance Management*, **59 (5)**: 415-431

Halkos G. and Bousinakis D. (2012). Importance and influence of organizational changes on companies and their employees. *Journal of Advanced Research in Management*, **0(2)**: 89-102.

Halpern R. (1999). After school programs for low-income children: Promise and challenges. *Future of Children*, **9(2)**: 81-95.

Heslop P., Smith G.D., Metcalfe C. and Macleod J. (2002). Change in job satisfaction, and its association with self-reported stress, cardiovascular risk factors and mortality. *Social Science & Medicine*, **54**: 1589-1599.

Humpert S. (2016). What Workers want: Job Satisfaction in the U.S. MPRA Paper No. **68772**, University Library of Munich, Germany.

Karasek R.A. (1979). Job demands, job decision latitude, and mental strain: implications for job redesign. *Administrative Science Quarterly*, 24(2): 285-308.

Locke E.A. (1984). *Job Satisfaction*. Chichester: John Wiley.

Mitroff I. (2005). *Why some companies emerge stronger and better from a crisis*. Publisher: AMACOM.

Ölçer F. and Florescu M. (2015). Mediating Effect of Job Satisfaction in the Relationship between Psychological Empowerment and Job Performance. *Business Excellence and Management*, 5(1): 5-32.

Origo F. and Pagani L. (2009). Flexicurity and Job Satisfaction in Europe: The Importance of perceived and actual Job Stability for Well-being at Work, *Labour Economics*, 16(5): 547-555.

Paoli P. (1997). *Working conditions in European Union*. European Foundation for Living and Working Conditions, Dublin.

Pauchant T.C. and Mitroff I.I. (1992). *Transforming the crisis-prone organization*. San Francisco: Jossey-Bass Publishers

Piketty T. (2014). *Capital in the Twenty-First Century*, Polis Publishers, Athens.

Seeger M.W., Sellnow T.L. and Ulmer R.R. (1998). Communication, organization, and crisis. *Communication Yearbook*, 21: 231-275

Selye H. (1964). *The stress of life*. Mc Graw–Hill Book Co., New York.

Siegrist J. (1996). Adverse health effects of High-Effort / Low- Reward Conditions. *Journal of Occupational Health Psychology*, 1(1): 27-41.

Stiglitz J. (2012). *The Price of Inequality: How Today's Divided Society Endangers Our Future*. Papadopoulos Publ., Athens.

Warr P. (1990). Decision latitude, job demands, and employee well-being. Work and stress. *Community of Scholars*, 4: 285-294.

Wheatley M. (2003). *Leadership and the new science*. Berret-Koehler, San Francisco, USA.

Venette S.J. (2003). *Risk communication in a High Reliability Organization: APHIS PPQ's inclusion of risk in decision making*. Ann Arbor, MI: UMI Proquest Information and Learning.

Zhu Y. (2013). A Review of Job Satisfaction. *Asian Social Science*, 9(1): 294-298.