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and Employees' Organizational
Commitment: A Semi-Nonparametric
Approach**

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ABSTRACT

Climbing the Ladders of Job Satisfaction and Employees' Organizational Commitment: A Semi-Nonparametric Approach

Researchers and human resource practitioners are nearly unanimous that satisfied and committed employees can play a major positive role in business performance. There is, however, a need for further evidence on what determines satisfaction at the workplace and how it can be promoted. In other words, do managers have access to specific satisfaction-enhancing variables, or are the determining factors more intrinsic to workers, such as their demographics or even religious beliefs and practices? Furthermore, is employee commitment totally explained by satisfaction, or do further factors promote it? This paper addresses these topics using an extensive sample of employees from a large number of countries. For this purpose, we use a semi-nonparametric estimator for a series of generalized models that nest the conventional ordered probit model, thus relaxing the distributional assumption in that model. The main results indicate that not all determinants of employees' satisfaction can be fostered by management, although some managerial instruments are available. Moreover, promoting workplace satisfaction helps increase employees' commitment (and consequently business success) but does not fully exhaust the explanation of such behavior. The findings of this study can motivate further study among researchers and illuminate helpful practices for human resource managers and practitioners.

JEL Classification: J50, J53

Keywords: job satisfaction, organizational commitment, worker characteristics, job characteristics, ordered probit, semi-nonparametric estimation

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1.Introduction

In today's competitive landscape, human resources are increasingly recognized as critical, valuable assets to any organization (Budreau & Ramstad, 2007; Fulmer & Ployhart, 2013). Consequently, strategic management of human resources plays a fundamental role in increasing employees' organizational commitment and consequently business performance (Brown, McNabb, & Taylor, 2011). Within this context, researchers and human resource managers and practitioners consider employees' satisfaction as a critical goal to be achieved, which influences their commitment or other positive behavioral attitudes towards the organization (Brown, McNabb, & Taylor, 2011; de la Torre-Ruiz, Vidal-Salazar, & Cordón-Pozo, 2019).

Therefore, not surprisingly, there is a vast and growing body of empirical literature on the determinants of employees' job satisfaction within human resource management and organizational behavior literature or in social science disciplines such as economics, psychology, and sociology (Weaver, 1977; Arvey, Bouchard, Segal, & Abraham, 1989; Borjas, 1979; Miller, 1990; Meng, 1990; Idson, 1990; Judge & Hulin, 1993; Judge, Heller, & Mount, 2002; Clark, 1996, 1997; Clark & Oswald, 1996; Battu, Belfield, & Sloane, 1997; Sousa-Poza & Sousa-Poza, 2000; Sloane & William, 2000; Leontaridi & Sloane, 2001; Belfield & Harris, 2002; Johnson & Johnson, 2002; King & Williamson, 2005; Vieira 2005; Pichler & Wallace, 2009; Westover & Taylor, 2010; Fiorillo & Nappo, 2014; Mehdad & Iranpour, 2014) and how such satisfaction relates to employees' level of organizational commitment (Hackett, & Guion, 1985; Harter, Schmidt, & Hayes, 2002; Rayton, 2006; Srivastava, 2013; Valaei & Rezaei, 2016; Saridakis, 2018; de la Torre-Ruiz, Vidal-Salazar, & Cordón-Pozo, 2019) and organizational performance (e.g., Huselid, 1995; Daily & Near, 2000; Koys, 2001;

Ellinger, Ellinger, Yang, & Howton, 2002; Harter, Schmidt, & Hayes, 2002; Mohr & Puck, 2007; Mafini & Poee, 2013).

This paper intends to add further empirical evidence to the literature on job satisfaction and organizational commitment and its managerial implications. In order to achieve this objective, this analysis addresses the following questions: Firstly, are there specific job satisfaction-enhancing variables at managers' disposal, or are these more intrinsic to workers (e.g., their demographics or religious beliefs and practices). Secondly, is employee commitment totally explained by job satisfaction, or are further influencing factors involved? To answer these questions, we analyze a vast sample of employees from a large number of countries using a semi-nonparametric of an ordered probit model. The results indicate that the conventional ordered probit model, which needs a distributional assumption about the error term, is rejected across the board against the semi-nonparametric alternative. Moreover, the findings suggest that not all determinants of workers' job satisfaction can be handled by management, although some managerial instruments are available. In addition, the promotion of job satisfaction helps increase employees' organizational commitment but does not fully explain such behavior. In particular, hypotheses testing reveals that many determinants of job satisfaction usually referred in the literature also exert a direct (not only indirect) effect on organizational commitment.

The paper is organized as follows. We begin by presenting a short review of the existing literature on job satisfaction and organizational commitment. We continue by presenting the conceptual framework, the hypotheses to be tested, the data set collected, and the statistical (micro-econometric) model to be used. Next, we present the estimation results and discuss the findings. Finally, we conclude and present the study limitations and directions for further research.

2. Literature Review

2.1 Job Satisfaction

The extant literature does not provide a unanimous or widely accepted definition of job satisfaction. For instance, Locke (1976) defines job satisfaction as “a pleasurable or positive emotional state resulting from appraisal of one’s job or job experiences” and Newstrom (2007) summarizes it as “a set of favourable or unfavourable feelings and emotions with which employees view their work.” Other definitions or approaches can be found in Spector (1997), Brief (1998), Judge and Kammeyer-Mueller (2012), and Frederici and Skaalvik (2012). In general, the concept expresses the degree to which one feels positively or negatively about their jobs (Khan, Khan, Nawaz, & Qureshi, 2009) and involves a subjective evaluation of many work-specific factors such as pay, work autonomy, occupational prestige, supervision, promotional opportunities, and workplace relations (Clark & Oswald, 1996; Schienman, 2002; David, Gidwani, Birthare, & Singh, 2015; Rayton, 2016; Saridakis, Lai, Torres, & Gourlay, 2018; Weaver, 1977; Wood & Ogbonnaya, 2018).

There is also a lack of consensus on how one can measure job satisfaction (Judge & Kammeyer-Mueller, 2012; van Saane, Sluiter, Verbeek, & Frings-Dresen, 2003). Regardless of definition, it has long been found in the literature that employees reported feelings towards their job are not be meaningless and may convey useful managerial information on individual behavior (Akerlof, Rose, & Yellen, 1988; Clegg, 1983; Harter, Schmidt, & Hayes, 2001; Hellman, 1997; Mangione & Quinn, 1975; McEvoy & Cascio, 1985; Shields & Price, 2002; Rayton, 2006; Saridakis, Lai, Torres, & Gourlay, 2018; Vroom, 1964).

Several (motivational) theories have been used to address job satisfaction, including the needs hierarchy theory (Maslow, 1943), two-factor theory (Herzberg, Mausner, & Snyderman, 1959), X and Y theory (McGregor, 1960), needs achievement theory (McClelland, 1961), equity theory (Adams, 1963), expectancy theory (Vroom, 1964), goal setting theory (Locke, 1968), and job characteristics theory (Hackman, & Oldham, 1975, 1976). These theoretical frameworks have guided some empirical work on the determinants and outcomes of job satisfaction. At the empirical level, some studies have examined overall job satisfaction, while others have focused on satisfaction with a specific aspect of the job (Saridakis, Lai, Torres, & Gourlay, 2018).

There is evidence that one's job satisfaction relates to a diversity of job-related characteristics, although the findings are not totally consistent across studies, such as pay (Adeoye & Fields, 2014; Bozeman & Gaughan, 2011; Brown, Gardner, Oswald, & Qian, 2008; Bygren, 2004; Cappeli & Sherer, 1988; Clark & Oswald, 1996; Heywood & Wei, 2006; Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010; McCausland, Konstantinos, & Ioannis, 2005; Pouliakas & Ioannis, 2010), hours of work (Clark, Oswald, & Warr, 1996), job (in)security (Artz & Kaya, 2014; Clark, 2008; Zheng, Diaz, Tang, & Tang, 2014), promotion opportunities (Bowen, Cattell, Distiller, & Edwards, 2008; Clark, 1998; Ellickson, 2000; Pergamit & Veum, 1999), job stress (Wang, Zhenh, & Hu, 2014; Warr, 1999), work autonomy (Weaver, 1977; Ross & Reskin, 1992), workplace relations with co-workers and management (Kalleberg, 1977; Raabe & Beerhr, 2003; Westover & Taylor, 2010), job-skill use (Allen & van der Velden, 2001; Amador & Vila, 2013; Belfield & Harris, 2002; Fleming & Kler, 2014; Johnson & Johnson, 2002; Vieira, 2005), and job-life interference (Agha, Azmi, & Irfan, 2017; Anderson, Coffey, & Byerly, 2002; Hughes & Bozinelos, 2007; Kossek & Ozeki, 1998; Sakthivel & Kamalanabhan, 2011; Scandura & Lankau, 1997).

Several authors have also examined the role of socio-demographic characteristics, or at least included them as an explanatory variable for job satisfaction, such as gender (Clark, 1977; Bartol & Wortman, 1975; Forgionne & Peeters, 1982; Linz, 2003; Okpara, Squillace, & Erondy, 2005; Oshagbemi, 2000; Souza-Poza & Souza-Poza, 2000, 2003; Varca, Shaffer, & McCauley, 1983; Weaver, 1977; Witt & Neal, 1992), age (Clark, Oswald, & Warr, 1996; Glenn, Taylor, & Weaver, 1977; Hunt & Saul, 1975; Linz, 2003; Saner & Eyüpoğlu, 2012; Chaudhuri, Reilly, & Spencer, 2015), education (Clark & Oswald, 1996; Clark, Oswald, & Warr, 1996; Linz, 2003; Ross & Reskin, 1992; Idson, 1990; Meng, 1990; Vila & García-Mora, 2005), marital status (Linz, 2003; Oswald & Warr, 1996; Saner & Eyüpoğlu, 2013), region or country (Borooah, 2009; Bozionelos & Kostopoulos 2010; Díaz-Serrano & Vieira, 2005; Jones & Sloane; Mysíková & Večerník, 2013) union membership (Berger, Olson, & Boudreau, 1983; Borjas, 1979; Bryson, Cappellari, & Lucifora, 2004; Clark, Oswald, & Warr, 1996; García-Serrano, 2008; Hammer & Avgar, 2005; Meng, 1990; Renaud, 2002), religious beliefs (King & Williamson, 2005), and public service *versus* private-sector employment (Top, Akdere, & Tarcan, 2015).

2.2 Organizational Commitment

It is widely recognized that employees' organizational commitment plays an important role in any organization, which is linked to important work-related factors such as employee turnover, absenteeism, and performance (Mowday, Steers, & Porter, 1979; Walton, 1985). Price (1997) defined organizational commitment as loyalty to a social unit. Others refer to it as the strength of identification and involvement with an organization (Brown, 1969; Mowday, Steers, & Porter, 1979). Mowday, Steers and Porter (1979) identified the following three components of organizational commitment: a strong belief in the organization's goals and values, a willingness to exert considerable

effort on behalf of it, and a strong intent to or desire to remain employed by the organization. Meyer and Allen (1991, 1997) refer to one's organizational commitment as a psychological state that has at least three separable components: affective commitment (a desire), continuance commitment (a need), and normative commitment (an obligation) to maintain employment in an organization. *Affective commitment* is an attitudinal process that involves employees' identification with, attachment to, and involvement in the organization's efforts to share its values and goals. *Continuance commitment* relates to employees' awareness of the costs associated with leaving the organization. *Normative commitment* reflects the feeling of obligation towards the organization based on their personal values and beliefs. In general, commitment captures the worker-employer ties or attachment.

Several studies have examined the determinants of organizational commitment, although, in this case, the findings are not consistent across different studies. Such research has addressed the explanatory role of variables including rewards or compensation (Paik, Parboteeah, & Shim, 2007), job-life balance (Azeem & Akhtar, 2014), job autonomy (Naqvi, Ishtiaq, Kanwal, & Ali, 2013), and demographic characteristics such as gender (Aven, Parker, & McEvoy, 1993; Matthieu & Zajec, 1990), age (Allen & Meyer, 1993; 2006; Kwon & Banks, 2004; Yucel & Bektas, 2012; Salami, 2008; Suliman & Lies, 2000), and education (Motazz, 1986; González, Sánchez, & López-Guzmán, 2016). Indeed, a close reading of empirical studies suggests that many determinants of job satisfaction also impact organizational commitment. The extent to which their effect on organizational commitment is direct, indirect (via the mediating effect of job satisfaction), or both is an important empirical issue in the literature. This study seeks to contribute to the literature in this regard.

2.3 Connecting Job Satisfaction and Organizational Commitment

The relationship between job satisfaction and organizational commitment has been studied over an extended period of time, although existing empirical evidence still reflects some lack of consensus on the causal ordering between these constructs (a comprehensive literature review and theoretical foundations on this issue can be found in Saridakis, Lai, Torres, & Gourlay, 2018). A large number of studies have evidenced or suggested job satisfaction as an antecedent of organizational commitment (Bakan, Suseno, Pinnington, & Money, 2014; Elangovan, 2001; Chan & Qiu, 2011; Froese & Xiao, 2012; Liou, Hu, & Chung, 2009; Top & Gider, 2013; Top, Akdere, & Tarcan, 2015). Others have proposed that organizational commitment shapes job satisfaction (Bateman & Strasser, 1984; Paik et al., 2007; Vandenberg & Lance, 1992), while some authors view these constructs as potentially reciprocally related (Huang & Hsiao, 2007; Lance, 1991; Farkas & Tetrick, 1989; Mathieu, 1991; Saridakis, Lai, Torres, & Gourlay, 2018; William, & Hazer, 1986). The examination of causal ordering is beyond the scope of this study. In this conceptual setting, we simply assume that job satisfaction precedes organizational commitment.

3. Methodology

3.1 The conceptual framework and hypotheses

Figure 1 displays the conceptual model for empirical examination. From the literature review on job satisfaction and occupational commitment, we draw the following hypotheses:

H1 - Employee characteristics influence job satisfaction, all else equal.

H2 - Job or workplace characteristics influence job satisfaction, all else equal.

H3 - Job satisfaction influences organizational commitment, all else equal.

---- insert Figure 1 about here ----

To investigate H1, we will test the effect of workers' characteristics on job satisfaction, controlling (i.e. wiping out) for any confounding effect arising via observed job or workplace characteristics, because some types of workers might be more likely (or allocated) within some types of jobs or workplaces. In such a case, if jobs' attributes were not controlled, employee attributes regression coefficients could also capture the effect of those attributes due to the correlation between both variables. In H2, we will test the influence of job or workplace characteristics on job satisfaction, controlling for the influence of workers' observed attributes. Hypothesis 3 intends to test the extent to which organizational commitment depends on job satisfaction, such as has been stated in a vast body of literature.

Two additional hypotheses are necessary to close the model. If the effect of employees and job or workplace characteristics on organizational commitment is totally mediated by job satisfaction, there is no room for any direct effect of these variables on organizational commitment (otherwise, those variables will also have a direct impact). In order to test this, the following hypotheses are put forward:

H4 - Employee characteristics have a direct impact on organizational commitment, all else equal.

H5 - Job or workplace characteristics have a direct impact on organizational commitment, all else equal.

In order to test H4, ones must control for the effect of job satisfaction and job or workplace characteristics on organizational commitment. To test H5, we must control for the influence of job satisfaction and employees' characteristics.

3.2 Data

The present study uses data from the 2015 Work Orientation module of International Social Survey Program (ISSP) survey, which was implemented in 2015-2016 in a large number of countries. The national surveys include random samples of the population and include questions regarding the general and working populations. For the purposes of the study, we only use data on working respondents. The final sample, after eliminating missing values on relevant variables, includes 14,437 working respondents.

The survey collected information on respondents, in this case employees, including characteristics such as age, gender, education, marital status, trade union membership, religion beliefs, attendance of religious services, and country of employment (captured by the country in which each national survey was conducted). It also includes questions on job or workplace characteristics, namely number of weekly hours worked, type of organization (public or private employer), whether the respondent supervises other workers or not in the workplace, whether the employee has recently received any training to improve skills at the workplace or elsewhere (which can be viewed as the extent to which the job provides or allows training opportunities to improve skills), perceived professional use of past experience and skills, perceived work-life balance, perceived relations in the workplace (between management and employees and between workmates or colleagues), perceived incidence of stress at work, and finally respondents' evaluation of their job on a five-point scale ranging from strongly disagree to strongly agree. These responses are given in response to statements such as a) *My job is secure*, b) *My income is high*, c) *My opportunities of advancement are high*, d) *My job is interesting*, e) *I can work independently*, f) *In my job I can help other people*, g) *My job is useful to society*, and h) *In my job I have personal contact with other people*. Table 1 presents the summary descriptive statistics on employee and

job-related characteristics, along with a description of other independent variables to be used in the regression analysis.

-----Insert Table 1 about here-----

The survey also asked the following question: *How satisfied are you in your (main) job?* The level of satisfaction had to be reported on a seven-point scale ranging from completely dissatisfied to completely satisfied (see Table 2). Moreover, respondents were asked the extent to which they agreed or disagreed with the following three statements: a) *I am willing to work harder than I have to in order to help the firm or organization for succeed*, b) *I am proud to be working for my firm or organization*, and c) *I would turn down another job that offered quite a bit more pay in order to stay with this organization*. The levels of agreement to these statements were reported on a five-point scale ranging from strongly disagree to strongly agree. These three items correspond to our measures of organizational commitment to the extent that they may reflect or capture workers level of involvement, affection, attachment, or dedication to the firm or organization.

-----Insert Table 2 about here-----

3.3 The statistical model

The constructs to be explained in this paper are level of job satisfaction and the level of organizational commitment. For the empirical analysis, and following the conceptual model previously described, the determinants of job satisfaction include both employee and job- or workplace-related characteristics. These are also considered determinants of organizational commitment together with job satisfaction. For this purpose, we estimate separate equations for job satisfaction and organizational commitments, which is a common procedure in most literature regarding these two constructs. Therefore, tackling

simultaneity or endogeneity issues between these constructs is beyond the scope of the present study, although recognizing these aspects may also be relevant for the analysis such as shown by Saridakis, Lai, Torres and Gourlay (2018). However, we will address a particularity that relates to the distributional assumption about the error term required in conventional parametric estimations.

When attending to the ordinal nature of dependent variables, a linear regression approach is not suitable. Instead, we use an ordered probit-type model that was first proposed by Aitchison and Silvey (1957) for the analysis of bio-statistical data and brought into social sciences by McKelvey and Zavoina (1975). Another common alternative in the literature is to assume that the error term follows a logistic pattern, which yields the so-called ordered logit model.

Consider that the dependent variable (job satisfaction or organizational commitment) for respondent i is determined by the following stochastic process:

$$y_i^* = \beta' x_i + \varepsilon_i \quad i=1, \dots, N \quad (1)$$

where y_i^* is a latent variable, x_i is a set of explanatory variables, β is the vector of parameters to estimate, and ε_i stands for a random term.

However, in the data, we do not observe y_i^* but an indicator variable y_i , which indicates the level of satisfaction or the level of organizational commitment, depending on the case under scrutiny to which the respondent belongs, such that:

$$y_i = j \quad \text{if} \quad \mu_{j-1} < y_i^* \leq \mu_j \quad j = 1, \dots, J \quad (2)$$

The thresholds μ are unknown and cut the assumed distribution for the error term into segments, being that $\mu_{j-1} < \mu_j$. Making the assumption that ε_i are independent and follow

a standard normal distribution, the probability that respondent i belongs to each alternative j is given by:

$$P(y_i = j) = \Phi(\mu_j - \beta' x_i) - \Phi(\mu_{j-1} - \beta' x_i) \quad \text{if } j = 1, \dots, J \quad (3)$$

The log-likelihood function to be maximized, which yields the relevant parameters for the ordered probit model, is given by:

$$\text{Log } L = \sum_{i=1}^N \sum_{j=1}^J \lambda_{ij} \log \{ \Phi(\mu_j - \beta' x_i) - \Phi(\mu_{j-1} - \beta' x_i) \} \quad (4)$$

where

$$\begin{cases} \lambda_{ij} = 1 & \text{if } y_i = j \\ \lambda_{ij} = 0 & \text{if } y_i \neq j \end{cases} \quad i = 1, \dots, N \quad j = 1, \dots, J$$

Identification in this model can be achieved by excluding the constant term and by fixing one of the μ_j (Stewart, 2004). Another alternative would be a simple normalization that keeps the constant term but fixes μ_1 equal to zero (Greene & Hensher, 2010; Greene, 2018).

This model, although widely used to examine ordinal data, depends on a strong assumption about the error term. An alternative to be pursued in this research is a semi-nonparametric estimator of an unknown density, proposed by Gallant and Nychka (1987). This procedure can be written as the product of a squared polynomial and a normal density. In such a case, the resulting model nests the standard ordered probit, thus allowing for hypothesis testing in order to choose the appropriate model.

The semi-nonparametric approach approximates the unknown density as:

$$f_K(\varepsilon) = \frac{\left(\sum_{k=0}^k \gamma_k \varepsilon^k\right)^2 \phi(\varepsilon)}{\int_{-\infty}^{\infty} \left(\sum_{k=0}^K \gamma_k \varepsilon^k\right)^2 \phi(\varepsilon) d\varepsilon} \quad (5)$$

The required distribution function is specified as:

$$F_K(u) = \frac{\int_{-\infty}^u \left(\sum_{k=0}^k \gamma_k \varepsilon^k\right)^2 \phi(\varepsilon) d\varepsilon}{\int_{-\infty}^{\infty} \left(\sum_{k=0}^K \gamma_k \varepsilon^k\right)^2 \phi(\varepsilon) d\varepsilon} \quad (6)$$

Equation (5) defines a family of semi-nonparametric distributions for increasing values of K , and the unknown density can be closely approximated by this Hermite series by increasing the choice of K , that is the degree of the polynomial, provided that it satisfies certain smoothness conditions (Gallant & Nychka, 1987; Stewart, 2004). Following Gallant and Nychka (1987), the model parameters can be consistently estimated by maximizing a pseudo-likelihood function which replaces in equation (4) the standard normal cumulative distribution by that defined in (6).

The model requires a location normalization for identification. One way of doing this is to fix the first threshold (μ_1) to its ordered probit estimate by using (4), which closely resembles the procedure used by Melenberg and van Soest (1996) in the context of a probit model. It is also worth noting that, when $K=0$, $K=1$, and $K=2$, the model is equivalent to the conventional ordered probit model. The choice of K is part of the model selection procedure by testing between different alternatives. In this paper, model estimation and further testing relies on Stewart (2004).

4. Results

Likelihood-ratio tests included in Table 3 regarding the explanation of job satisfaction for different values of K from 3 to 5 reject the standard ordered probit model against the semi-nonparametric alternative in all cases. Moreover, likelihood-ratio tests for K against $K-1$ reject the null hypothesis at significance levels of 10% or less for $K \leq 4$ but not for K above this limit, suggesting selection of a $K=4$ model.

---- Insert Table 3 about here ----

Estimation results for the $K=4$ semi-nonparametric ordered probit model are presented in Table 4, in which workers reported a level of job satisfaction is explained through a set of employee and a set of job-related characteristics. The null hypotheses that each of these sets of variables as a whole does not explain workers' job satisfaction are rejected at conventional significance levels using the likelihood-ratio tests included in Table 5. These results validate Hypotheses H1 and H2.

---- Insert table 4 about here ----

However, it is worth noting that not all variables included in those sets have explanatory power, such is the case of individual characteristics like age, gender, and whether or not the employee is a union member (Table 5). However, other attributes such as education, religious beliefs, and country of residence explain job satisfaction. For instance, as education increases, the likelihood of being completely satisfied decreases, and that of being completely dissatisfied increases. In terms of religious beliefs, Buddhists show the highest probability of being completely satisfied with their job. Finally, there are significant differences in job satisfaction by country. Out of 36 countries included in the regression and after controlling for the effect of a large number of other individual and job-related characteristics, Georgia and India occupy the two

extremes. That is, the highest likelihood of being completely satisfied is found in India and is the lowest in Georgia, all else equal. Compared with the United States, which corresponds to the reference category in the regression, the probability of a worker being completely satisfied is higher, and the probability of being completely unsatisfied is lower for countries such as India, Mexico, Venezuela, Spain, Russia, Israel, Croatia, Chile, Austria, and the Czech Republic. The reverse (i.e. the probability of being completely satisfied is lower and that of being completely unsatisfied is higher, as compared with the United States) is true in Georgia, Taiwan, China, Japan, Lithuania, Suriname, Sweden, Australia, Germany, and Slovenia. There is no statistical difference in those probabilities between the United States and the remaining fifteen countries used in the analysis, all else equal.

---- Insert Table 5 about here ----

Job and workplace characteristics matter for employees' level of satisfaction in most cases. The aspects of being a public servant, feeling of security in a job which brings a high income, having many opportunities for advancement, accessing training to improve skills, feeling interested in one's job, feeling useful to society, helping other people, and having the ease of taking time off during working hours positively impact reported job satisfaction. The same is valid for those who feel they have non-stressful work, good relations among workmates, good relations between management and employees, application of past experience and skills, and no interference with family life.

The likelihood ratio tests included in Table 6 suggest the use of a $K=4$ semi-nonparametric ordered probit model to explain employees' organizational commitment, whose estimation results are included in Table 7. Moreover, based on the information

included in Table 8, the null hypothesis that workers' job satisfaction does not influence organization commitment is rejected across the board, thus supporting H3. Also, the two null hypotheses that employee characteristics and job characteristics do not directly influence organizational commitment are rejected at conventional levels of significance, thus validating H4 and H5, respectively. This implies that, as a whole, job and worker attributes do not determine organizational commitment only indirectly via their effect on job satisfaction, but also directly. In such a case, organizational commitment varies within each level of job satisfaction, depending on the values of those attributes. Nevertheless, some particularities can be isolated when examining the set as a whole and investigating the role of specific variables. Only a few cases will be mentioned below, although others can be easily identified within the estimated results included in Table 5 and Table 8.

---- Insert Table 6 about here ----

---- Insert Table 7 about here ----

---- Insert Table 8 about here ----

For instance, although gender has no visible effect on job satisfaction and therefore indirectly influences organizational commitment, it directly impacts the degree of agreement on the willingness to work harder in order to help the firm or organization succeed. In this case, women are less likely to strongly agree and more likely to strongly disagree, compared to men. However, gender has no visible effects on other organizational commitment indicators such as the pride of working for the firm or the willingness to turn down another job that offers quite bit more pay in order to stay with the organization. The same is valid for union membership, whose coefficient is not statistically different from zero in the satisfaction equation. However, unionized

workers are more unwilling to work harder in order to help the firm succeed than their non-unionized counterparts, but do not differ from these with respect to the pride of working for the firm or the willingness to stay in the job.

There are substantial heterogeneous outcomes regarding the impact of religious beliefs on organizational commitment. Hindus and Catholics are apparently more available to work harder to promote the success of the firm or organization. Hindus, Islamics, Protestants, and Catholics are more likely to be proud to work for a firm or organization. Buddhists are more probable to turn down another job in order to stay in the firm or organization. Years of completed education exert no direct effect on organizational commitment but only indirectly through their influence on job satisfaction.

There is also significant heterogeneity regarding the influence of country of residence on organizational commitment, which varies within a specific construct as well as across constructs (Table 9). Regarding the statement regarding their willingness to work harder in order to help a firm succeed, workers in Venezuela had the highest probability of strongly agreeing and the lowest probability of strongly disagreeing, all else equal, with the other extreme of the ranking occupied by France. The United States ranked fourth, although the difference was not statistically from the second and the third (South Africa and Georgia). With respect to being proud of working for the firm or organization, Venezuela also led, while the other extreme of the ranking was found in Russia. In this case, the United States ranked third but was not statistically different from the second in the ranking (Spain), and France occupied a middle position. Despite some visible differences in these two rankings, such as the case position of France, a Spearman rank correlation equals 0.606 ($P=0.000$), indicating the positive significant association between them, therefore suggesting a proximity of type of organizational

commitment captured by these two variables. However, substantial differences emerge when these rankings are compared with that of the willingness to turn down another job that offered quite a bit more pay in order to stay in the firm or organization. In this case, workers in Japan were the ones with the highest probability of strongly agreeing and the lowest probability of strongly disagreeing, followed by China, Israel, and the Philippines, among others (Table 9). The other extreme is occupied by Iceland, but the United States ranks thirty-second out of 36 countries. Employees in Venezuela, which occupied the top of the ranking in the former constructs, now occupy the twenty-sixth position. A Spearman rank correlation coefficient included at the bottom of Table 9 does not support any significant association between this ranking and the two previously examined. This finding suggests that the type of organizational commitment captured by this variable and the former ones are quite different, as it is likely closer to some sort of continuance commitment. Employees with high levels of continuance commitment remain in the organization because they need to stay until they find a more suitable opportunity elsewhere (Meyer & Allen, 1997).

5. Discussion

Job satisfaction, organizational commitment, and the relationship between them have been heavily debated in several fields and scientific areas. The present study sought to contribute to this literature by evaluating the determinants of these two constructs using a semi-nonparametric estimation of separate ordered probit models. For this purpose, we previously assumed within the conceptual framework that job satisfaction can serve as an antecedent of organizational commitment.

Empirical testing revealed some interesting results. Job satisfaction depends on some employees' characteristics and job-related attributes, which is in line with other previous research listed in our literature review. Furthermore, job satisfaction

significantly influences organizational commitment but does not fully explain such behavior. Finally, organizational commitment depends directly and indirectly (via job satisfaction) on employees and job-related attributes. These outcomes have several managerial implications.

It has been argued that organizational commitment contributes to business success, but our results indicate that its promotion embodies a complex network. In addition, not all variables that directly and/or indirectly determine organizational commitment are readily under the management's control, such as for instance gender, religious beliefs and practices, public versus private sector work, country of residence, or union membership. However, many instruments can be used in order to directly and/or indirectly enhance organizational commitment, like creating conditions to reduce stress in the workplace (due to its indirect impact on organizational commitment via job satisfaction) and promoting good relations between workmates and with management. Whenever possible, enabling an employee to take time off during working time and improving the coordination between job and family life also seems important in order to achieve that goal, which points to the role of flexible workplace arrangements and practices for individuals, teams, and organizations (Anderson, Coffey, & Byerly, 2002; Clarke & Holdsworth, 2017; Scandura & Lankau, 1997). Recruiting workers with previous experience and skills to be used at work or providing training to improve workers' skills in order to avoid job-skill mismatch can help promote satisfaction and commitment. Other instruments relate to the development of practices that promote employees' positive feelings about job aspects such as pay, security, or autonomy and provide opportunities for job career development.

Finally, country-specific factors play a significant role in job satisfaction and organizational commitment. Indeed, job satisfaction diverges substantially according to

country, after controlling for a large set of other personal and job-related attributes. The same is true regarding organizational commitment. Moreover, the impact of country of residence on the explanation for the likelihood of *turning down another job that offered quite a bit more pay in order to stay at the firm* and the explanation for the other two organizational commitment constructs differs substantially (where, for instance, a country such as the United States jumps from one extreme to another in the commitment ranking). This means that, despite the convergence in many aspects due to globalization, managers, and human resources, professionals must be aware that substantial differences still exist.

6. Conclusions, limitations, and future research directions

This paper examined job satisfaction and organizational commitment using a sizeable data set from a large number of countries. Due to the ordered nature of the dependent variables, we estimate ordered probit equations using a semi-nonparametric approach, which revealed itself to be superior to the conventional ordered probit model. The results indicated that employee- and job-related attributes directly and indirectly (through job satisfaction) affect organizational commitment. However, within each of those sets, not all variables play the same role or are equally available for managerial purposes. Nevertheless, managers have a large set of workplace variables they can consider to promote organizational commitment.

This semi-nonparametric approach does not address some aspects which could be explored in future research, such as the potential endogeneity of job satisfaction arising from omitted variables and simultaneity in the organizational commitment equation, which could be relevant (Saridakis, Lai, Torres, & Gourlay, 2018). Moreover, a replication of the methodology applied to different countries separately could add to

the understanding of cross-country differences or similarities in the determinants of job satisfaction and organizational commitment as well as the relationship between these two constructs.

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Figure 1. Model Proposal

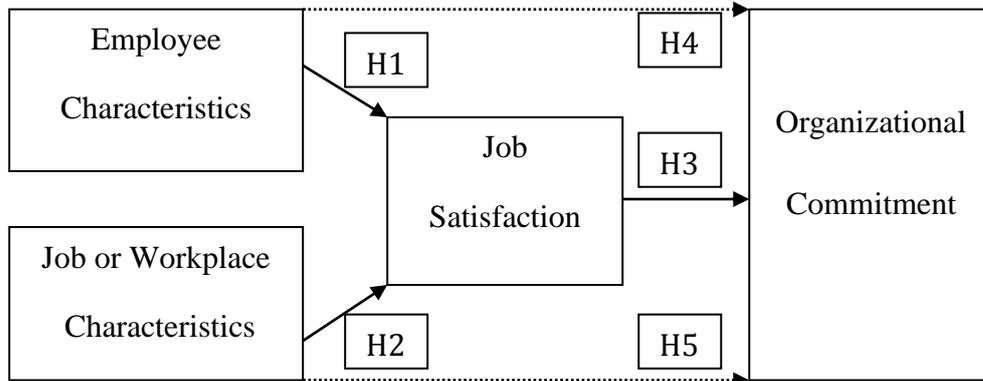


Table 1. Data and variables description

Variable	Description	Mean	S.Dev.
Age	Reported age (years)	42.192	11.954
Age ² /100	Reported age squared	1923.0	1016.1
Female	1 if a female worker, 0 otherwise	0.5421	
Years of education	Reported education (in years)	14.618	10.051
Living in steady partnership	1 if the worker lives in steady partnership, 0 otherwise	0.6281	
Unionized worker	1 if the worker is unionized, 0 otherwise	0.2616	
Catholic	1 if affiliated with the Catholic religion, 0 otherwise	0.3008	
Protestant	1 if affiliated with the Protestant religion, 0 otherwise	0.1930	
Orthodox	1 if affiliated with the Orthodox religion, 0 otherwise	0.0616	
Other Christian religions	1 if affiliated with other Christian religions, otherwise	0.0470	
Jewish	1 if affiliated with the Jewish religion, 0 otherwise	0.0219	
Islamic	1 if affiliated the Islamic religion, 0 otherwise	0.0231	
Buddhist	1 if affiliated with the Buddhist religion, 0 otherwise	0.0175	
Hindu	1 if affiliated with the Hindu religion, 0 otherwise	0.0149	
Other Asian religions	1 if affiliated with other Asian religions, 0 otherwise	0.0329	
Other religions	1 if affiliated with other religions, 0 otherwise	0.0096	
Attendance of religious services	1 if attends religious services at least once a week, 0 otherwise	0.1076	
Australia	1 if the survey was conducted in Australia, 0 otherwise	0.0268	
Austria	1 if the survey was conducted in Austria, 0 otherwise	0.0255	
Belgium	1 if the survey was conducted in Belgium, 0 otherwise	0.0479	
Chile	1 if the survey was conducted in Chile, 0 otherwise	0.0240	
China	1 if the survey was conducted in China, 0 otherwise	0.0166	
Taiwan	1 if the survey was conducted in Taiwan, 0 otherwise	0.0497	
Croatia	1 if the survey was conducted in Croatia, 0 otherwise	0.0252	
Czech Republic	1 if the survey was conducted in Czech Republic, 0 otherwise	0.0320	

Estonia	1 if the survey was conducted in Estonia, 0 otherwise	0.0315
Finland	1 if the survey was conducted in Finland, 0 otherwise	0.0280
France	1 if the survey was conducted in France, 0 otherwise	0.0272
Georgia	1 if the survey was conducted in Georgia, 0 otherwise	0.0109
Germany	1 if the survey was conducted in Germany, 0 otherwise	0.0444
Hungary	1 if the survey was conducted in Hungary, 0 otherwise	0.0258
Iceland	1 if the survey was conducted in Iceland, 0 otherwise	0.0298
India	1 if the survey was conducted in India, 0 otherwise	0.0109
Israel	1 if the survey was conducted in Israel, 0 otherwise	0.0265
Japan	1 if the survey was conducted in Japan, 0 otherwise	0.0262
Latvia	1 if the survey was conducted in Latvia, 0 otherwise	0.0263
Lithuania	1 if the survey was conducted in Lithuania, 0 otherwise	0.0181
Mexico	1 if the survey was conducted in Mexico, 0 otherwise	0.0171
New Zealand	1 if the survey was conducted in New Zealand, 0 otherwise	0.0109
Norway	1 if the survey was conducted in Norway, 0 otherwise	0.0431
Philippines	1 if the survey was conducted in Philippines, 0 otherwise	0.0240
Poland	1 if the survey was conducted in Poland, 0 otherwise	0.0189
Russia	1 if the survey was conducted in Russia, 0 otherwise	0.0362
Slovak Republic	1 if the survey was conducted in Slovak Republic, 0 otherwise	0.0265
Slovenia	1 if the survey was conducted in Slovenia, 0 otherwise	0.0229
South Africa	1 if the survey was conducted in South Africa, 0 otherwise	0.0321
Spain	1 if the survey was conducted in Spain, 0 otherwise	0.0380
Suriname	1 if the survey was conducted in Suriname, 0 otherwise	0.0177
Sweden	1 if the survey was conducted in Sweden, 0 otherwise	0.0353
Switzerland	1 if the survey was conducted in Switzerland, 0 otherwise	0.0384
United Kingdom	1 if the survey was conducted in United Kingdom, 0 otherwise	0.0290
Venezuela	1 if the survey was conducted in Venezuela, 0 otherwise	0.0172
Supervising other workers	1 if the respondent supervises other employees, 0 otherwise	0.2505

Public servant	1 if the respondent works for a public employer, 0 otherwise	0.3303	
High income job	1 if respondent agrees or strongly agrees that has a high-income job, 0 otherwise	0.2854	
Secure job	1 if respondent agrees or strongly agrees that has a secure job, 0 otherwise	0.7204	
Job with high opportunities for advancement	1 if respondent agrees or strongly agrees that his job has high opportunities for advancement, 0 otherwise	0.2942	
Received training to improve job skills	1 if the worker received training to improve skills over the last 12 months, 0 other.	0.4763	
Interesting job	1 if respondent agrees or strongly agrees that his job is interesting, 0 otherwise	0.7252	
Useful job to society	1 if respondent agrees or strongly agrees that his job is useful to society, 0 otherwise	0.9205	
Job can help other people	1 if respondent agrees or strongly agrees that in his job he can help other people, 0 otherwise	0.8914	
Job allows personal contact with other people	1 if respondent agrees or strongly agrees that his job has personal contact with other people, 0 otherwise	0.9553	
Can work independently	1 if respondent agrees or strongly agrees that can work independently in his job, 0 otherwise	0.7140	
Easy to take time off during working hours	1 if respondent considers that it is not too difficult or not difficult at all to take time off during working hours, 0 otherwise	0.6086	
Nonstressful work	1 if respondent hardly ever or never finds to have a stressful work, 0 otherwise	0.2186	
Hours worked weekly	Number of hours worked per week	37.085	8.921
Good relations between workmates or colleagues	1 if respondent considers that relations between workmates or colleagues are quite good or very good, 0 otherwise	0.8634	
Good relations between manag. and employees	1 if respondent considers that relations between management and employees are quite good or very good, 0 otherwise	0.7316	
Job does use of past work exper. and skills	1 if respondent considers that job does a lot or almost all use of past work experience and skills, 0 otherwise	0.6233	
Job demands do not interfere with family life	1 if respondent considers that job demands hardly ever or never interfere with the family life , 0 otherwise	0.5863	

Table 2. Job satisfaction and organizational commitment description

	%
Level of Job Satisfaction:	
1-Completely dissatisfied	1.7
2-Very dissatisfied	2.2
3-Dissatisfied	4.8
4-Neither satisfied nor dissatisfied	10.1
5-Satisfied	35.9
6-Very satisfied	30.2
7-Completely satisfied	14.7
Level of Organizational Commitment:	
<i>a) I am willing to work harder than I have to in order to help firm or organization for succeed</i>	
1-Strongly disagree	5.3
2-Disagree	12.8
3-Neither agree nor disagree	21.8
4-Agree	42.6
5-Strongly agree	17.5
<i>b) I am proud to be working for my firm or organization</i>	
1-Strongly disagree	2.6
2-Disagree	7.6
3-Neither agree nor disagree	23.2
4-Agree	45.7
5-Strongly agree	21.0
<i>c) I would turn down another job that offered quite a bit more pay in order to stay with this organization</i>	
1-Strongly disagree	16.1
2-Disagree	28.5
3-Neither agree nor disagree	23.3
4-Agree	20.0
5-Strongly agree	12.1

Table 3. Job satisfaction: LRT tests for model choice

	Log-L	LR-test of OP	DF	p-value	LR-Test of K-1	DF	p-value
OP	-18088.07						
K=3	-18044.49	87.15	1	0.000	87.15	1	0.000
K=4	-17999.84	176.46	2	0.000	89.30	1	0.000
K=5	-17999.06	178.02	3	0.000	1.56	1	0.211

Obs: OP and DF denote ordered probit and degrees of freedom, respectively.

Table 4. The determinants of employees' job satisfaction

	Coef.	S. Error	
1.Employee Characteristics			
Age	-0.0039	0.0044	
Age ² /100	0.0001	0.0001	
Female	0.0191	0.0187	
Years of education	-0.0021	0.0009	**
Living in steady partnership	0.0636	0.0204	***
Unionized worker	-0.0320	0.0242	
Catholic	0.0701	0.0290	**
Protestant	0.0653	0.0309	**
Orthodox	0.1018	0.0595	*
Other Christian religions	-0.0541	0.0474	
Jewish	-0.2228	0.1334	*
Islamic	0.1544	0.0685	**
Buddhist	0.2111	0.0806	***
Hindu	0.0524	0.1140	
Other Asian religions	0.1991	0.0888	**
Other religions	-0.0689	0.0972	
Attendance of religious services	0.0617	0.0321	*
Australia	-0.1875	0.0718	***
Austria	0.2461	0.0742	***
Belgium	0.0361	0.0614	
Chile	0.2477	0.0767	***
China	-0.3392	0.0850	***
Taiwan	-0.3906	0.0906	***
Croatia	0.2706	0.0759	***
Czech Republic	0.1483	0.0685	**
Estonia	-0.0347	0.0698	
Finland	0.1113	0.0707	
France	-0.0068	0.0707	
Georgia	-0.5382	0.1178	***
Germany	-0.1776	0.0621	***
Hungary	-0.0281	0.0739	
Iceland	0.0290	0.0714	
India	0.7481	0.1444	***
Israel	0.2793	0.1291	**
Japan	-0.2662	0.0776	***
Latvia	-0.0653	0.0746	
Lithuania	-0.2314	0.0827	***
Mexico	0.5825	0.0876	***
New Zealand	-0.0936	0.0981	
Norway	-0.0201	0.0631	
Philippines	0.1285	0.0795	
Poland	0.0472	0.0802	

Russia	0.2801	0.0827 ***
Slovak Republic	0.0350	0.0724
Slovenia	-0.1633	0.0760 **
South Africa	0.0614	0.0698
Spain	0.3421	0.0673 ***
Suriname	-0.2016	0.0871 **
Sweden	-0.1976	0.0681 ***
Switzerland	0.0708	0.0629
United Kingdom	0.0014	0.0705
Venezuela	0.4452	0.0859 ***

2. Job or Workplace Characteristics

Supervising other workers	0.0348	0.0220
Public servant	0.0702	0.0210 ***
High income job	0.2660	0.0253 ***
Secure job	0.2303	0.0239 ***
Job with high opportunities for advancement	0.2395	0.0252 ***
Received training to improve job skills	0.0800	0.0197 ***
Interesting job	0.7409	0.0395 ***
Useful job to society	0.1692	0.0370 ***
Job can help other people	0.1514	0.0331 ***
Job allows personal contact with other people	0.1150	0.0452 **
Can work independently	0.1379	0.0234 ***
Easy to take time off during working hours	0.1285	0.0202 ***
Nonstressful work	0.2687	0.0256 ***
Hours worked weekly	-0.0011	0.0011
Good relations between workmates or colleagues	0.2575	0.0308 ***
Good relations between management and employees	0.6294	0.0368 ***
Job does use of past work experience and skills	0.1287	0.0206 ***
Job demands do not interfere with family life	0.3238	0.0238 ***

Thresholds:

μ_1	-0.7807	Fixed
μ_2	-0.1382	0.0514 ***
μ_3	0.6368	0.0762 ***
μ_4	1.4071	0.1039 ***
μ_5	2.8463	0.1596 ***
μ_6	4.0023	0.2069 ***

Polynomial:

1	0.0029	0.0089 ***
2	-0.0980	0.0194 ***
3	0.0054	0.0022 ***
4	0.0169	0.0014 ***

Log-L	-17999
Wald chi-squared (70)	546.1

Number of observations

14437

*** Significant at the 1% level

** Significant at the 5% level

* Significant at the 1% level

Table 5 . Job Satisfaction Hypotheses Testing

Null hypotheses	LRT	DF	P-value
1.Employee characteristics do not influence job satisfaction, all else equal	654	52	0.0000
2.Job or workplace characteristics do not influence job satisfaction, all else equal	5585	18	0.0000

Table 6. Organizational commitment: LRT tests for model choice

<i>I am willing to work harder than I have to in order to help the firm or organization for succeed</i>							
	Log-L	LR-Test of			LR-Test of		
		OP	DF	p-value	K-1	DF	p-value
OP	-17916.14	-	-	-	-	-	-
K=3	-17862.58	107.12	1	0.000	107.12	1	0.000
K=4	-17824.00	184.27	2	0.000	77.15	1	0.000
K=5	-17823.77	184.74	3	0.000	0.46	1	0.497
<i>I am proud to be working for my firm or organization</i>							
	Log-L	LR-Test of			LR-Test of		
		OP	DF	p-value	K-1	DF	p-value
OP	-15078.53	-	-	-	-	-	-
K=3	-15010.57	135.94	1	0.000	135.94	1	0.000
K=4	-14940.82	275.42	2	0.000	139.49	1	0.000
K=5	-14940.82	275.43	3	0.000	0.01	1	0.938
<i>I would turn down another job that offered quite a bit more pay in order to stay with this organization</i>							
	Log-L	LR-Test of			LR-Test of		
		OP	DF	p-value	K-1	DF	p-value
OP	-19394.57	-	-	-	-	-	-
K=3	-19374.81	39.52	1	0.000	39.52	1	0.000
K=4	-19308.55	172.03	2	0.000	132.51	1	0.000
K=5	-19307.83	173.47	3	0.000	1.45	1	0.229

Obs: OP and DF denote Ordered probit and degrees of freedom, respectively.

Table 7. Organizational Commitment Hypotheses Testing

1. Job satisfaction does not influence organizational commitment, all else equal			
1.1 <i>I am willing to work harder than I have ...</i>	778	6	0.0000
1.2 <i>I am proud to be working for firm or organization</i>	1632	6	0.0000
1.3 <i>I would turn down another job ...</i>	1048	6	0.0000
2. Employee characteristics do not directly influence organizational commitment, all else equal			
2.1 <i>I am willing to work harder than I have ...</i>	1721	52	0.0000
2.2 <i>I am proud to be working for firm or organization</i>	919	52	0.0000
2.3 <i>I would turn down another job ...</i>	799	52	0.0000
3. Job characteristics do not directly influence organizational commitment, all else equal			
3.1 <i>I am willing to work harder than I have ...</i>	710	18	0.0000
3.2 <i>I am proud to be working for firm or organization</i>	2141	18	0.0000
3.3 <i>I would turn down another job ...</i>	528	18	0.0000

Note: LRT and DF stand for likelihood ratio test and degrees of freedom, respectively.

Table 7. The determinants of employees' organizational commitment

	<i>Work harder in order to help the firm or organization for succeed</i>		<i>Proud to be working for the firm or organization</i>		<i>Turn down another job that offered quite a bit more pay to stay in the firm or organization</i>	
	Coef.	S. Error	Coef.	S. Error	Coef.	S. Error
1.Employee Characteristics:						
Age	0.0041	0.0048	0.0138	0.0043 ***	0.0111	0.0043 ***
Age ² /100	-0.0001	0.0001	-0.0001	0.0001 ***	0.0000	0.0001
Female	-0.0849	0.0196 ***	0.0022	0.0170	-0.0189	0.0164
Years of education	-0.0004	0.0009	-0.0011	0.0008	-0.0003	0.0008
Living in steady partnership	0.0183	0.0199	0.0587	0.0183 ***	0.0153	0.0179
Unionized worker	-0.0689	0.0243 ***	0.0260	0.0220	0.0263	0.0212
Catholic	0.0798	0.0293 ***	0.0712	0.0264 ***	0.0240	0.0254
Protestant	0.0375	0.0306	0.0734	0.0283 ***	-0.0141	0.0269
Orthodox	-0.0778	0.0570	0.0805	0.0532	-0.0460	0.0516
Other Christian religions	0.0007	0.0469	0.1093	0.0435 **	0.0754	0.0420 *
Jewish	-0.2291	0.1256 *	0.0554	0.1125	-0.0722	0.1066
Islamic	0.1016	0.0669	0.2213	0.0613 ***	0.0251	0.0586
Buddhist	-0.0400	0.0798	0.0963	0.0747	0.1466	0.0716 **
Hindu	0.5009	0.1199 ***	0.2667	0.1034 ***	0.1241	0.1006
Other Asian religions	0.0611	0.0852	0.1705	0.0804 **	0.0447	0.0747
Other religions	0.1061	0.0924	-0.0180	0.0841	-0.0300	0.0835
Attendance of religious services	0.0201	0.0320	0.0648	0.0292 **	0.0819	0.0288 ***
Australia	-0.4012	0.0751 ***	-0.3194	0.0656 ***	-0.0045	0.0616
Austria	-0.6998	0.0893 ***	-0.5266	0.0720 ***	0.2398	0.0672 ***

Belgium	-0.8982	0.0879 ***	-0.3205	0.0576 ***	0.1778	0.0540 ***
Chile	-1.0765	0.1040 ***	-0.6323	0.0714 ***	0.0817	0.0643
China	-0.1426	0.0812 *	-0.3091	0.0775 ***	0.6040	0.0793 ***
Taiwan	-0.1209	0.0853	-0.4728	0.0808 ***	0.1659	0.0753 **
Croatia	-0.7129	0.0901 ***	-0.3385	0.0688 ***	0.0307	0.0642
Czech Republic	-0.4934	0.0760 ***	-0.5862	0.0663 ***	0.4630	0.0645 ***
Estonia	-0.8941	0.0916 ***	-0.7392	0.0690 ***	0.0887	0.0602
Finland	-1.0019	0.1002 ***	-0.5950	0.0691 ***	0.4438	0.0672 ***
France	-1.2416	0.1104 ***	-0.2787	0.0661 ***	0.0285	0.0622
Georgia	0.0173	0.1133	-0.1824	0.1037 *	0.2403	0.1003 **
Germany	-0.8027	0.0828 ***	-0.5789	0.0604 ***	0.2818	0.0561 ***
Hungary	-0.4875	0.0786 ***	-0.3495	0.0674 ***	0.0601	0.0641
Iceland	-0.0289	0.0714	-0.0791	0.0656	-0.1615	0.0629 ***
India	-0.3348	0.1372 **	-0.4549	0.1282 ***	0.3549	0.1275 ***
Israel	-0.1414	0.1220	-0.2211	0.1098 **	0.5507	0.1105 ***
Japan	-0.3071	0.0787 ***	-0.2565	0.0709 ***	0.6795	0.0782 ***
Latvia	-1.0476	0.1047 ***	-0.4924	0.0702 ***	0.5164	0.0712 ***
Lithuania	-1.0255	0.1078 ***	-0.7497	0.0789 ***	0.3905	0.0771 ***
Mexico	-0.2719	0.0871 ***	-0.1625	0.0775 **	0.3003	0.0797 ***
New Zealand	-0.1319	0.0964	-0.1243	0.0895	0.1655	0.0820 **
Norway	-0.3502	0.0666 ***	-0.1772	0.0580 ***	0.2635	0.0566 ***
Philippines	-0.3433	0.0788 ***	-0.3261	0.0724 ***	0.5307	0.0754 ***
Poland	-0.9971	0.1056 ***	-0.6108	0.0768 ***	0.1652	0.0708 **
Russia	-0.8942	0.1032 ***	-0.8741	0.0821 ***	0.3350	0.0744 ***
Slovak Republic	-0.6141	0.0827 ***	-0.5256	0.0679 ***	0.2512	0.0633 ***
Slovenia	-0.7299	0.0894 ***	-0.2735	0.0693 ***	0.1889	0.0666 ***
South Africa	0.0616	0.0677	-0.1480	0.0633 **	0.2192	0.0618 ***
Spain	-0.6312	0.0850 ***	0.0345	0.0612	-0.0567	0.0622

Suriname	-0.4209	0.0920 ***	-0.1564	0.0776 **	0.5227	0.0858 ***
Sweden	-0.6641	0.0827 ***	-0.5185	0.0649 ***	-0.0896	0.0605
Switzerland	-0.4233	0.0698 ***	-0.3586	0.0597 ***	0.3468	0.0577 ***
United Kingdom	-0.3073	0.0721 ***	-0.3066	0.0644 ***	0.1602	0.0606 ***
Venezuela	0.4025	0.0923 ***	0.3982	0.0837 ***	0.1268	0.1158
2.Job or Workplace Characteristics						
Supervising other workers	0.1893	0.0257 ***	0.0962	0.0204 ***	0.0861	0.0200 ***
Public servant	-0.0730	0.0208 ***	0.0118	0.0189	-0.0199	0.0181
High income job	0.0533	0.0222 **	0.0268	0.0202	0.0938	0.0201 ***
Secure job	-0.0280	0.0210	0.0941	0.0197 ***	0.0868	0.0194 ***
Job with high opportunities for advancement	0.1140	0.0237 ***	0.1607	0.0219 ***	0.1329	0.0215 ***
Received training to improve job skills	0.0884	0.0200 ***	0.1145	0.0181 ***	0.0137	0.0169
Interesting job	0.1539	0.0256 ***	0.3496	0.0265 ***	0.1401	0.0230 ***
Useful job to society	0.0369	0.0357	0.1602	0.0331 ***	0.1155	0.0334 ***
Job can help other people	0.0710	0.0323 **	0.1014	0.0296 ***	0.1754	0.0313 ***
Job allows personal contact with other people	0.0971	0.0447 **	0.0331	0.0406	0.0744	0.0412 *
Can work independently	0.1243	0.0236 ***	0.0991	0.0208 ***	0.0407	0.0200 **
Easy to take time off during working hours	0.1190	0.0207 ***	0.0752	0.0181 ***	0.0813	0.0181 ***
Nonstressful work	-0.0310	0.0229	-0.0041	0.0210	0.0216	0.0203
Hours worked weekly	0.0016	0.0011	-0.0006	0.0010	-0.0018	0.0009 *
Good relations between workmates or colleg.	-0.0063	0.0286	0.0031	0.0264	0.0552	0.0260 **
Good relations between manag. and employees	0.2772	0.0305 ***	0.3432	0.0261 ***	0.1747	0.0239 ***
Job does use of past work exper. and skills	0.0524	0.0195 ***	0.0356	0.0180 **	0.0310	0.0173 *
Job demands do not interfere with family life	0.0904	0.0200 ***	-0.0151	0.0178	0.0075	0.0171
3.Job satisfaction						
Very dissatisfied	0.3045	0.1291 **	0.5479	0.1161 ***	0.7190	0.1215 ***

Fairly dissatisfied	0.5518	0.1164 ***	0.8523	0.1036 ***	0.7480	0.1048 ***
Neither satisfied nor dissatisfied	0.6530	0.1135 ***	1.1206	0.1027 ***	1.0872	0.1086 ***
Fairly satisfied	0.8342	0.1185 ***	1.4219	0.1071 ***	1.3008	0.1136 ***
Very satisfied	1.0407	0.1270 ***	1.8337	0.1156 ***	1.6521	0.1272 ***
Completely satisfied	1.5128	0.1485 ***	2.3296	0.1283 ***	1.9538	0.1413 ***
Thresholds:						
μ_1	-0.9924	Fixed	-0.0626	Fixed	1.3602	Fixed ***
μ_2	0.0278	0.0065 ***	0.9205	0.0530 ***	2.3099	0.0641 ***
μ_3	0.8152	0.1293 ***	2.0067	0.0942 ***	2.9433	0.1027 ***
μ_4	2.2040	0.2215 ***	3.4561	0.1477 ***	3.7003	0.1488 ***
Polynomial:						
1	-0.1040	0.0774	-0.2179	0.0560 ***	-0.1430	0.0692 **
2	-0.1400	0.0315 ***	-0.1850	0.0197 ***	-0.1987	0.0415 ***
3	0.0063	0.0013 ***	0.0289	0.0076 ***	0.0076	0.0028 ***
4	0.0237	0.0025 ***	0.0259	0.0019 ***	0.0289	0.0034 ***
Log-L	-17824		-14940		-19308	
Wald chi-squared (76)	272.5		759.3		358.2	
Number of observations	14437		14437		14437	

*** Significant at the 1% level

** Significant at the 5% level

* Significant at the 10% level

Table 8. Regression coefficients ranking by country (from highest to lowest) and Spearman rank correlation by organizational commitment constructs

	<i>Work harder in order to help the firm or organization for succeed</i>	<i>Proud to be working for the firm or organization</i>	<i>Turn down another job that offered quite a bit more pay to stay in the firm or organization</i>
1	Venezuela	Venezuela	Japan
2	South Africa	Spain	China
3	Georgia	United States	Israel
4	United States	Iceland	Philippines
5	Iceland	New Zealand	Suriname
6	Taiwan	South Africa	Latvia
7	New Zealand	Suriname	Czech Republic
8	Israel	Mexico	Finland
9	China	Norway	Lithuania
10	Mexico	Georgia	India
11	Japan	Israel	Switzerland
12	United Kingdom	Japan	Russia
13	India	Slovenia	Mexico
14	Philippines	France	Germany
15	Norway	United Kingdom	Norway
16	Australia	China	Slovak Republic
17	Suriname	Australia	Georgia
18	Switzerland	Belgium	Austria
19	Hungary	Philippines	South Africa
20	Czech Republic	Croatia	Slovenia
21	Slovak Republic	Hungary	Belgium
22	Spain	Switzerland	Taiwan
23	Sweden	India	New Zealand
24	Austria	Taiwan	Poland
25	Croatia	Latvia	United Kingdom
26	Slovenia	Sweden	Venezuela
27	Germany	Slovak Republic	Estonia
28	Estonia	Austria	Chile
29	Russia	Germany	Hungary
30	Belgium	Czech Republic	Croatia
31	Poland	Finland	France
32	Finland	Poland	United States
33	Lithuania	Chile	Australia
34	Latvia	Estonia	Spain
35	Chile	Lithuania	Sweden
36	France	Russia	Iceland
Work...	-	0.606 (P=0.000)	0.021 (P=0.902)
Proud...	-	-	0.004 (P=0.983)