Determinants of job satisfaction and turnover intention of IT professionals in Japan

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This study investigates the IT workplace in Japan in the context of rapidly changing technological innovation and a long-standing collectivist culture in Japanese firms. Particularly, it examines a) the determinants of job satisfaction, such as self-efficacy and friendship networks on the positive side, and work exhaustion and work-home conflict on the negative side; and b) how these factors affect job turnover intention. Results from SEM analysis suggest that both self-efficacy and friendship networks have a positive impact on job satisfaction, while work exhaustion negatively impacts job satisfaction. Comparing workplace-derived factors (self-efficacy and work exhaustion) with collectivism-derived factors (friendship networks and work-home conflict), the former has a greater impact on job satisfaction than the latter. Additionally, this study examines the effect of organizational age on the relationships between the model constructs.

Keywords: Japan | job satisfaction | turnover intention | friendship networks | self-efficacy | work exhaustion | work-home conflict

Article:

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Determinants of Job Satisfaction and Turnover Intention of IT Professionals in Japan

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Abstract

This study investigates the IT workplace in Japan in the context of rapidly changing technological innovation and a long-standing collectivist culture in Japanese firms. Particularly, it examines a) the determinants of job satisfaction, such as self-efficacy and friendship networks on the positive side, and work exhaustion and work-home conflict on the negative side; and b) how these factors affect job turnover intention. Results from SEM analysis suggest that both self-efficacy and friendship networks have a positive impact on job satisfaction, while work exhaustion negatively impacts job satisfaction. Comparing workplace-derived factors (self-efficacy and work exhaustion) with collectivism-derived factors (friendship networks and work-home conflict), the former has a greater impact on job satisfaction than the latter. Additionally, this study examines the effect of organizational age on the relationships between the model constructs.

Keywords

Japan, job satisfaction, turnover intention, friendship networks, self-efficacy, work exhaustion, work-home conflict.

Introduction

This project is part of empirical studies being coordinated by the World IT Project (WITP) (Palvia et al. 2018; Palvia et al. 2017), and it attempts to answer two important research questions in the Japanese business and cultural context. The Japanese workplace is very unique. *Shushin koyosei,* which can be translated as "lifetime commitment" or "lifetime employment" (Abegglen 1958; 2006), is generally considered the most important feature of the Japanese workplace. *Shushin koyosei* is "the social contract between firm and employee, a commitment to work as a community to achieve economic security for all members of the workforce" (Abegglen 2006, p. 73). In most Japanese industries, this social contract has survived largely intact since the 1950s. *First,* according to the Japan Institute for Labour Policy and Training, the average tenure of permanent full-time employees in 2017 was 12.1 years (Anonymous 2018a) with 44.5% of employees having at least 10 years of tenure (Anonymous 2018b) which shows the tendency of the Japanese workers to stay with their employers for the long-term. *Second*, the latest annual statistics indicate that under the stable Japanese economy, the average turnover rate has remained low over the past five years (Anonymous 2018c). *Third*, collectivism is an important attribute of the Japanese workplace where loyalty towards one's company is highly regarded (Nakane 1970; Huff and Kelley 2003). Human resource management launches months-long training for new employees hired right out of college on April 1st, the first day of work. A long training period gives new workers an opportunity to build social networks among their colleagues and supervisors. They often enjoy informal talks together in bars or restaurants

after working hours (Nakane 1970; Huff and Kelley 2003). It is called "nomination" (nomi=drinking alcohol in Japanese + communication), and it can be a good way to develop better communication and intimate relationships (Tsutsui 2010). In this way, the collectivist culture, where employees view themselves as highly interdependent within the organization (Gelfand et al. 2004), is formed. Thus, "key practices in Japan's employment system — an emphasis on continuity, on group integrity, and on egalitarianism — remain in effect" (Abegglen, 2016, p.89).

At the same time, the Japanese IT industry exhibits some unique characteristics which may be somewhat inconsistent with the traditional interpretation of the *shushin koyosei* concept. *First*, IT professionals are frequently exposed to stressful work conditions. This, in turn, may affect their behavior and loyalty towards their employers. *Second*, due to continuous appearance of new job opportunities, many IT workers prefer less stable (i.e., high risk and high return) workplaces and take on more challenging, ambitious work. *Third*, a somewhat diminishing seniority system in the IT environment has accelerated job-hopping, especially among talented workers. *Fourth*, rivalry among competitors in the IT industry is severe. The term "3K" (i.e., *kitsui* – hard, *kibishii* – demanding, and *kaerenai* – having irregular working hours) is used to refer to an IT professional's work environment (Anonymous 2018d). This results in work pressure, lower job satisfaction, and potential turnover intention. Thus, it is critical to explore the issues of job satisfaction and turnover intention in the contemporary IT work environment in Japan.

The discussion above leads to an interesting research question: what conditions make IT professionals in Japan want to leave their organizations? Particularly, this study examines a) the determinants of job satisfaction and b) how job satisfaction affects turnover intention. The research questions are:

> RQ1: What are the antecedents of job satisfaction among IT employees in Japan?

> RQ2: What are the antecedents of turnover among IT employees in Japan?

Literature Review and Model Development

Job satisfaction is the degree to which people are content with their jobs (Spector 1997). Some studies have examined a direct relationship between job satisfaction and turnover intention, while others have explored a relationship among job satisfaction, turnover intention, and organizational commitment. In order to accurately capture the literature, we identified peer-reviewed papers in English from the EBSCO database by using the search terms "job satisfaction and turnover intention," "job satisfaction, organizational commitment, and turnover intention," and "job satisfaction and turnover intention and professional," extracting 684, 243, and 135 papers, respectively. After merging the search results, we identified relevant models in 93 papers pertaining to both IT and non-IT domains. Many non-IT models included the organizational commitment construct, which was mostly positioned as an antecedent of turnover intention or as a moderator of the job satisfaction→turnover intention relationship. However, in the IT field, a vast majority of studies excluded organizational commitment and focused on the job satisfaction→turnover intention relationship as well as on antecedents of job satisfaction. For this reason, organizational commitment was excluded from our study.

Determinants of job satisfaction in the 93 models varied from one study to another. We analyzed their constructs and extracted several keywords. The first category of keywords related to work exhaustion, role conflict, job tension, burnout, and work-related stress. Hence, we included work exhaustion in our model. Work exhaustion is defined as the depletion of mental resources needed to cope with one's work (Lee 2011; Moore 2000). Job stress is defined as "a situation wherein job-related factors interact with a worker to change (i.e., disrupt or enhance) his or her psychological and/or physiological condition" (Beehr and Newman 1978, p.670). Role stressors are created by role ambiguity, role conflict, role overload, and work-family conflict (Ngo, Foley, & Loi, 2005), and they are also related to work exhaustion. Thus, these words are all interrelated. Some empirical studies have shown that role stressors can have a negative effect on job satisfaction (Guimaraes and Igbaria 1992; Ngo et al. 2005; Rasch and Harrell 1990). Burnout is generally considered a very important factor (Jung and Kim 2012; Ply et al. 2012). Some researchers view work exhaustion as an independent variable that influences job satisfaction and/or turnover intention (work exhaustion→job satisfaction/turnover intention) (Cho et al. 2017; Kim 2012; Rutherford et al. 2012), while others view it as a moderator or a mediator of the job satisfaction-turnover intention relationship (e.g., job satisfaction→work exhaustion→turnover intention) (Ahuja et al. 2007; Ashill and Rod 2011; Lee 2011; Moore 2000; Ngo et al. 2005; Rutner et al. 2008; Thatcher et al. 2002). In this study, we positioned work

exhaustion as an antecedent of job satisfaction because we were interested in the factors directly driving job satisfaction.

The second category of keywords pertained to self-efficacy related words (Dinger et al. 2015; Nauta et al. 2010). Self-efficacy is defined as "an individual's convictions (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context" (Stajkovic and Luthans 1998, p. 66). Efficacy beliefs also influence how people think, feel, self-motivate, and behave (Bandura 1995). It is strongly related to job satisfaction, organizational commitment, and psychological well-being at work (Avey et al. 2011). Hence, we included self-efficacy in the model. We also added collectivist factors such as friendship networks and work-home conflict. Friendship networks are defined as informal circles of friends in one's work environment where employees approach one another for help and maintain strong personal relationships. Workplace friendship refers to nonexclusive workplace relationships that involve mutual trust, commitment, reciprocal linking and shared interests or values (Berman et al. 2002). Work-home conflict refers to the irreconcilable demands from work and family (Turel et al. 2011). These four constructs are consistent with Palvia et al. (2017), who identified self-efficacy, work exhaustion, friendship networks, and work-home conflict as important individual factors for IT employees. It should also be noted that the survey instrument was developed in order to "build theory-based models using individual-level constructs to predict personal outcomes such as stress, turnover, etc. and test them in different countries" (Palvia et al. 2018, p. 7). As a result, we proposed a model where self-efficacy and friendship networks have positive effects on job satisfaction, while work exhaustion and work-home conflict have negative impacts.

Based on the literature above, we hypothesized a direct negative path between job satisfaction and turnover intention (Bhagwatwar et al. 2014; Lee 2003; Serenko et al. 2015; Soonhee and Wright 2007). Those IT workers who are less satisfied with their jobs are more likely to voluntarily leave their organizations:

H1: Job satisfaction has a negative direct effect on turnover intention.

Previous studies have suggested that work exhaustion is a critical factor that influences job satisfaction (Ashill and Rod 2011; Cho et al. 2017; Kim 2012; Moore 2000; Rutherford et al. 2012). For IT professionals in particular, the "3K" situation contributes to work exhaustion which, in turn, strongly affects job satisfaction. Work-home conflict also causes imbalance between an IT professional's work responsibilities and personal life (Dinger et al. 2010; Ngo et al. 2005). Therefore, both work exhaustion and work-home conflict have a negative effect on job satisfaction. We hypothesized:

H2: Work exhaustion has a negative direct effect on job satisfaction.

H3: Work-home conflict has a negative direct effect on job satisfaction.

In general, self-efficacy leads to high job satisfaction (Dinger et al. 2015; White et al. 2003) because those who feel competent at doing their jobs are more likely to perceive themselves as being successful which results in higher job satisfaction. Thus, we hypothesized:

H4: Self-efficacy has a positive direct effect on job satisfaction.

Rath (2006) found that "close friendships are one of the best predictors of attendance, retention, satisfaction, and strength of beliefs" in an organization (p. 58). In a collectivist culture in Japan, building a strong friendship network would positively affect job satisfaction (Raile et al. 2008):

H5: Friendship networks have a positive direct effect on job satisfaction.

In addition, this study examines the effect of organizational age as a control variable. It is likely that as Japanese organizations age and become more mature, they develop a stronger collectivistic culture which, in turn, may affect the way employees communicate, collaborate, support each other, and perceive their work environment. Thus, the effect of organizational age is worth exploring (Palvia et al. 2017).

Methodology

Our empirical data were collected as part of the WITP. We conducted an online survey of IT employees from September to November 2016 with the help of a web survey company in Japan. The items for the operationalization of all constructs were consistent with the WITP survey instrument (Palvia et al. 2017). All items were measured on a 5-point Likert-type scale. The web survey company built a website linking to

our online site and sent emails to a number of random IT workers from all regions of Japan asking them to respond to the questionnaire. The website was closed when more than 300 samples were acquired. Excluding 26 incomplete entries and outliers from 310 valid samples left us with a total of 284 responses.

Table 1 shows all the constructs and indicators. As these constructs are well defined and commonly used by the WITP, we skip an exploratory factor analysis. An initial confirmatory factor analysis for all the constructs and indicators (shown Table 1) found that, with a factor loading cut-off value of 0.5, FN1 (0.428) and TI2 (0.485) did not meet the criterion. Thus, we excluded these two indicators.

Construct	Indicator	Average	Standard deviation	Factor loading
SE1	I feel I'm making an effective contribution to what this organization does.	2.49	0.83	0.704
SE2	In my opinion, I do a good job.	2.50	0.83	0.799
SE3	I have accomplished many worthwhile things in this job.	2.49	0.84	0.849
SE4	At my work, I feel confident that I am effective at getting things done.	2.34	0.78	0.792
FN1	To what extent do you seek help from your personal circle of friends or acquaintances?	2.45	0.68	0.462*
FN2	To what extent do you attempt to help them?	1.96	0.67	0.838
FN3	To what extent do you maintain a relationship with these friends or acquaintances?	2.17	0.76	0.651
WE1	I feel drained from activities at work.	2.95	1.10	0.895
WE2	I feel tired from my work activities.	2.92	1.16	0.905
WE3	Working all day is a strain for me.	2.96	1.04	0.705
WE4	I feel burned out from my work activities.	3.44	1.07	0.672
WHC1	There is a blurring of boundaries between my job and my home life.	3.33	1.10	0.697
WHC2	My work-related responsibilities create conflicts with my home responsibilities.	3.23	1.09	0.771
WHC3	I do not get everything done at home because I find myself completing job-related work.	3.39	0.98	0.818
JS1	In general, I like working here.	2.49	0.93	0.811
JS2	All in all, I am satisfied with my current job.	2.70	0.94	0.794
JS3	Generally, I do not like present work. (R)	2.62	1.00	0.533
TI1	I will be with this organization one year from now. (R)	3.74	0.95	0.839
TI2	I will take steps during the next year to secure a job at a different organization.	3.37	0.97	0.488*
TI3	I will be with this organization five years from now. (R)	3.26	1.03	0.673

*: Removed item (Factor loading score < 0.5). SE: self-efficacy; FN: friendship networks; WE: work exhaustion; WHC: work-home conflict; JS: job satisfaction; TI: turnover intention.

Table 1. Constructs and Indicators

Analysis

To further assess the validity and reliability of all factors, we conducted a confirmatory factor analysis using the maximum likelihood estimation method with the criteria provided by Fornell and Larcker (1981) and Hair et al. (2014). From this, we determined that a) standardized loading estimates were 0.5 or higher, b) for discriminant validity, both maximum shared variance (MSV) and the average shared squared variance (ASV) were lower than the average variance extracted (AVE) for all constructs, and c) composite reliability (CR) was 0.7 or higher. In addition, we calculated Cronbach's alpha values to confirm the internal consistency for measures of multi-item scales with a threshold of 0.7. Table 2 summarizes the results indicating that every criterion was met. Overall, the results collectively demonstrated that the constructs possess reliability and validity, enabling the model's use in the subsequent steps.

Construct	Indicator	Factor Loading	Cronbach's Alpha	AVE	MSV	ASV	CR
Self-efficacy	SE1	0.703	0.87	0.620	0.197	0.102	0.867
	SE2	0.799					
	SE3	0.848					
	SE4	0.793					
Friendship networks	FN2	0.780	0.70	0.541	0.165	0.055	0.701
	FN3	0.688					
Work exhaustion	WE1	0.896	0.87	0.643	0.404	0.119	0.876
	WE2	0.905					
	WE3	0.705					
	WE4	0.672					
Work home conflict	WHC1	0.696	0.80	0.583	0.404	0.098	0.807
	WHC2	0.770					
	WHC3	0.819					
Job satisfaction	JS1	0.814	0.74	0.524	0.393	0.165	0.762
	JS2	0.794					
	JS3	0.528					
Turnover intention	TI1	0.822	0.72	0.572	0.393	0.113	0.726
	TI3	0.685					

AVE: average variance extracted; MSV: maximum shared variance; ASV: average shared squared variance; CR: composite reliability.

Table 2. Confirmatory Factor Analysis

The following indices were used to assess model fit: CFI (>0.95); NFI (>0.90); NNFI (>0.90); $\chi2$ /df (3.0); SMAR (<0.08); and RMSEA (<0.06) (Browne & Cudeck, 1993; Hu & Bentler, 1995; Hu & Bentler, 1999). A covariance-based structural equation modeling technique was used by means of AMOS (Arbuckle, 2006). The model had good fit: CFI (0.947: slightly lower than the cut-off criteria); NFI (0.900); NNFI (0.933); $\chi2$ /df (1.99: $\chi2$ = 240.412, df = 121); SMAR (0.0796); RMSEA (0.059). Figure 1 illustrates that all standardized coefficients were significant at least at the level of $p < 0.05$ (except work-home conflict→job satisfaction path). All of the hypotheses except H3 were supported.
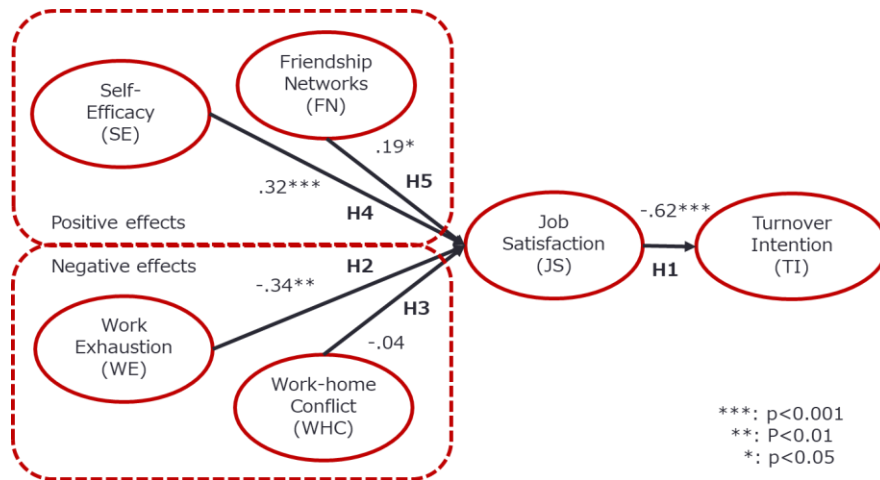
Figure 1. The Structural Model

Next, we built a direct-path added model (Figure 2 on the left side), which examined direct paths from friendship networks, self-efficacy, work exhaustion, and work-home conflict to turnover intention. The measures of fit (same as above) were all acceptable as determined by the indices' thresholds: CFI (0.946: slightly lower than the cut-off criteria); NFI (0.900); NNFI (0.929); χ2 /df (2.04: χ2 = 239.110, df = 117); SMAR (0.0791), RMSEA (0.061: slightly higher than the cut-off criteria). We found no significant coefficients from friendship networks, self-efficacy, work exhaustion, and work-home conflict to turnover intention at the level of p < 0.05.
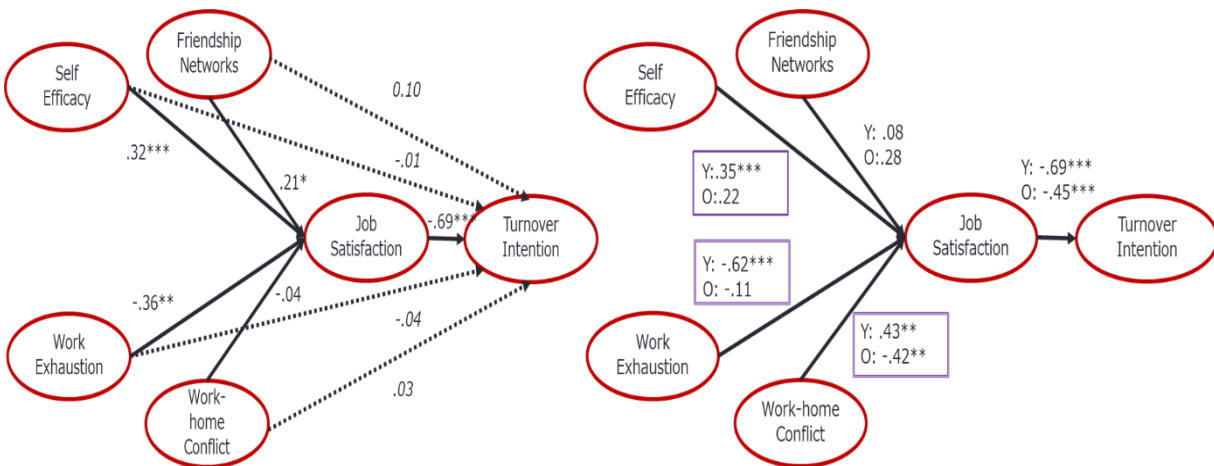

Figure 2. Additional models

In order to examine the effect of organizational age, samples were stratified into two groups: young organizations having the age from one month to 29 years (158 firms), and old organizations having the age of 30 years or more (126 firms). Figure 2 on the right shows the results of pairwise parameter comparisons conducted in AMOS (Arbuckle 2006). We observed statistically significant differences in path coefficients between young (Y) and old (O) firms for the following relationships: self-efficacy→job satisfaction (Y strong positive effect), work exhaustion→job satisfaction (Y strong negative effect), and work-home conflict→job satisfaction (Y strong positive effect; O: strong negative effect). No statistically significant differences for the job satisfaction→turnover intention link were observed.

Discussion

The results provided strong support for all hypotheses from H1 to H5 except for H3. Job satisfaction showed a significant negative effect on turnover intention (β=-0.62). Among the job satisfaction determinants, self-efficacy (β=0.32) had the strongest positive effect, followed by friendship networks (β=0.19), while work

exhaustion had a strong negative effect (β=-0.34). Comparing IT workplace-derived factors (self-efficacy and work exhaustion) with collectivism-derived factors (friendship networks and work-home conflict), the former had a stronger impact on job satisfaction than the latter. A high self-efficacy does not contradict to collectivism. Rather, "a high sense of personal efficacy contributes just as importantly to group directedness as to self-directedness" (Bandura 1995, p.35). In addition, stratifying the samples into young and old organizations by age clarified the reason why the work-home conflict→job satisfaction path (H3) was not statistically significant. Namely, the path coefficient of work-home conflict→job satisfaction for young organizations was positive (β=0.43), whereas that for old organizations was negative (β=-0.42). A combination of both groups could not provide a statistically significant beta coefficient.

Figure 2 on the right side shows a sharp contrast between young and old organizations. Generally, older Japanese organizations exhibit a stronger collectivist culture than younger ones. Thus, a collectivist culture suppresses the effect of three individual variables. First, it may reduce a negative effect of job satisfaction on turnover intention. Even though the difference in the structural relationships was not statistically significant, a major reduction in its strength was observed for older organizations. Second, it eliminates a positive effect of self-efficacy on job satisfaction. Third, it removes a negative impact of work exhaustion on job satisfaction. This suggests that in organizations with strong collectivist cultures, IT workers are less impacted by their personal preferences, feelings, and perceptions. Fourth, it is possible that the attributes of collectivist culture also transfer onto employee-family relationships, and employees start valuing their relationships with family members to a larger degree. As a result, they exhibit a strong negative effect of work-home conflict on job satisfaction. At the same time, the observed positive relationship between work-home conflict and job satisfaction for younger organization was somewhat surprising, and it is suggested that future researchers examine this issue in detail.

The direct-path produced no significant path coefficients from the four job satisfaction determinants to turnover intention. Thus, job satisfaction is a full mediator of the relationship between these four constructs (i.e., work-home conflict, work exhaustion, self-efficacy, friendship networks) and turnover intention.

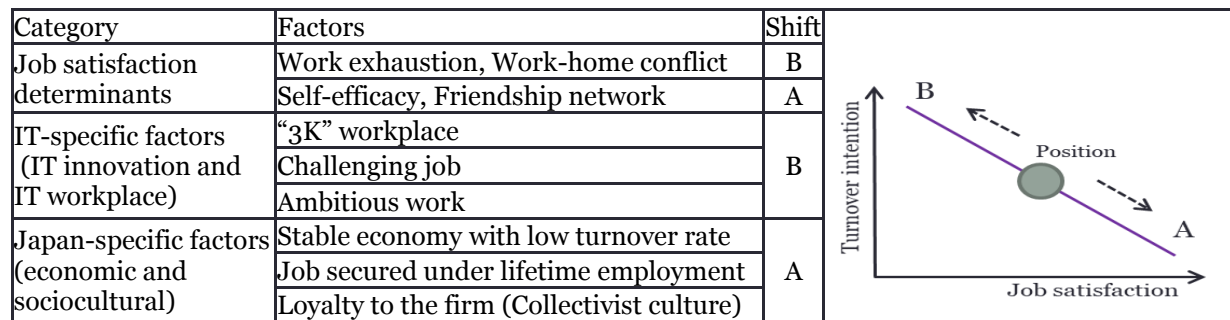Figure 3 summarizes the situation that Japanese IT professionals are facing.

Category	Factors	Shift	
Job satisfaction determinants	Work exhaustion, Work-home conflict	B	
	Self-efficacy, Friendship network	A	
IT-specific factors (IT innovation and IT workplace)	"3K" workplace	B	
	Challenging job		
	Ambitious work		
Japan-specific factors (economic and sociocultural)	Stable economy with low turnover rate	A	
	Job secured under lifetime employment		
	Loyalty to the firm (Collectivist culture)		

Figure3. Summary of the Results

As mentioned above, we found a strong negative relationship between job satisfaction and turnover intention (Figure 3 on the right) meaning that when IT professionals increase their job satisfaction, they reduce their turnover intention. A shift towards the job satisfaction side (A) occurs when 1) self-efficacy and/or friendship networks are strengthened, 2) Japan keeps a stable economy with low turnover rate (workers feel protected by lifetime employment), and 3) loyalty to the firm is strengthened. In contrast, a shift towards turnover intention side (B) occurs when 1) work exhaustion and/or work-home conflict are increased, 2) the "3k" situation intensifies, and 3) IT workers seek new challenging or ambitious jobs. This situation is embedded into "the Japanese paradox" (Passet, 2006). The "Japanese paradox" refers to a unique situation where Japan enjoys a low turnover rate and a relatively stable economy yet its employees have a feeling of job insecurity, pessimism about their future, and dissatisfaction with the present. Thus, in a turbulent IT industry, the "3K" situation is further intensified and IT employees may become increasingly worried about their future and some may try to move to other more stable (from their perspective) organizations. In this case, they may be ready to accept more challenging and demanding jobs.

Conclusion

First, we confirmed a strong negative effect of job satisfaction on turnover intention. *Second*, we proposed and empirically tested a model containing four job satisfaction determinants; two of them (work exhaustion and self-efficacy) relate to IT professionals' workplace, while the other two (friendship networks and work-home conflict) relate to Japan's collectivist culture. *Third*, we discovered that organization age is an important factor affecting the model's structural relationships. It was concluded that older organizations have a stronger collectivist culture that suppresses the causal effect of the individual level variables (job satisfaction, work exhaustion, and self-efficacy). In addition, it dramatically changes the sign of the relationship between work-home conflict and job satisfaction so that it is positive for younger organizations and negative for older ones. Thus, we recommend adding organization age and, potentially, the strength of collectivist culture as a moderator of various relationships in models predicting job satisfaction and turnover intention of IT workers.

This study has two important theoretical contributions. *First*, this work is part of empirical studies being coordinated by the WITP, and it focuses on the two research questions. The results presented here further the discussion, allowing us to compare data from different countries. *Second*, our literature review found that determinants of job satisfaction in the empirical models varied from one study to another. The relationship between antecedents of job satisfaction, job satisfaction, turnover intention, and organizational commitment are mixed including the results of meta-analysis (Bowling et al. 2015; Judge and Bono 2001; Ng and Feldman 2010). We also found that there are few studies that investigate IT professionals in Japan. This study adds a sample of empirical studies in Japan-specific context to the research stream.

The findings of this study have two important practical implications. *First*, managers should recognize the fact that the shortage of advanced IT professionals in Japan (including in AI, IoT, and Big Data fields) is estimated to be at around 170,000 workers. As a result, it behooves managers to do their best to understand the factors facilitating turnover decisions of IT professionals. As this study demonstrates, managers should understand the level of their employees' job satisfaction and find the factors affecting it. *Second*, they should boost their employees' self-efficacy by means of formal training and mentorships. They should also promote the development of friendship network by means of active socialization during and after work hours. Such friendship networks are especially important for older organizations. In addition, they should manage work exhaustion of their employees, particularly in younger organizations. Thus, effective and efficient human resource management policies and procedures are required to ensure the retention of IT workers in Japan.

Despite its contribution, this study has several limitations. First, factor analysis identified two indicators with low loadings which were removed. It is possible that this affected content validity of the measurement instrument. Second, the findings are Japan-specific. In order to generalize the results, we should have compared the results with those from other countries. Such issues will be examined in the future.

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