Full Length Research Paper

An analysis of the relations among job characteristics, manager leadership behaviours, and employees' job satisfaction- The case of Taiwanese tax officials

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This study uses a structural equation model to explore the relations among job characteristics, manager leadership behaviours, and employees' job satisfaction with regard to Taiwanese tax officials. Data were collected using convenience sampling, and the results of analyzing 183 questionnaires are as follows: (1) there are positive correlations between the observed variables, and also between the latent variables correlations; (2) task variety and cooperation are highly related to job characteristics; (3) initiating structure leadership, consideration leadership, salary satisfaction, and satisfaction towards one's superior are highly related to manager leadership behaviours; and (4) promotion, salary, satisfaction towards one's superior, and satisfaction towards one's job are highly related to job satisfaction. Manager leadership behaviours have a mediating effect on the relations between job characteristics and job satisfaction.

Key words: Job characteristics, manager leadership behaviours, employee job satisfaction, structural equation model.

INTRODUCTION

A country's finances support all government actions, and this money is generally raised through taxation, which accounts for about two-thirds of the total in Taiwan. However, in recent years, the tax authorities in Taiwan have seen falling staff numbers while having to deal with an increasing number of tax collection activities, leading to greater work-related pressure. Many previous studies have indicated that higher job satisfaction leads to better work performance, and thus enhances the job satisfaction of tax personnel which could increase the quality of tax collection services, and possibly improve the country's financial situation (Lee, 2000). The current work uses a

structural equation model to examine the job satisfaction of Taiwanese tax officials, in order to better understand its relationships with various demographic variables, job characteristics, and manager leadership behaviors. It is anticipated that the results of this study can serve as a reference to help improve managerial practices within tax offices.

There are many previous studies that consider the relationships among job characteristics, leadership behavior, job satisfaction, and resignation tendency. However, most of these works examine this issue by using descriptive statistics analysis, correlation analysis,

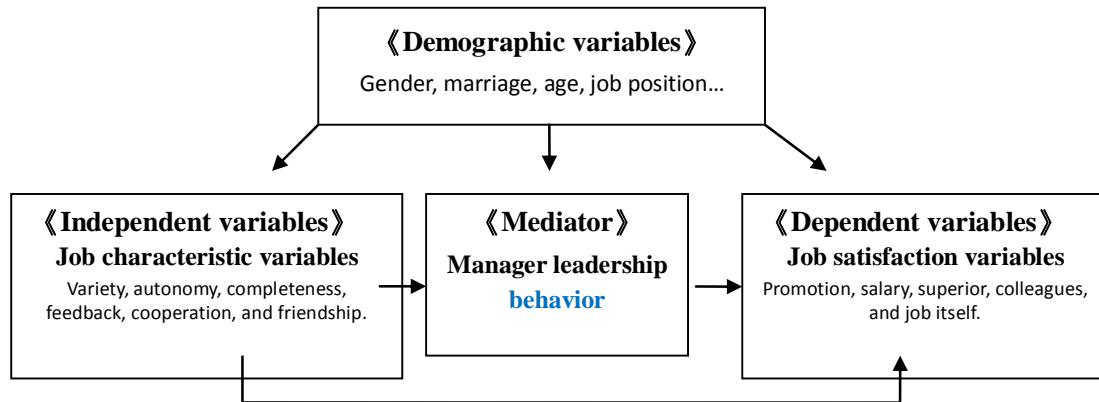*Corresponding author. E-mail: r8702@ms14.hinet.net.

Figure 1. The relationship between demographic and research variables.

regression analysis, analysis of variance, and multiple comparisons analysis, all of which are traditional forms of analysis for observed variables. In contrast, this study conducts latent variable analysis and explores issues like measurement error and model prediction effects in empirical examples.

Earlier studies (Seashore and Taber, 1975) have proposed that job satisfaction is affected by both environmental variables (e.g., job characteristics, social status, career prospects, and manager leadership style) and individual variables (e.g., gender, education, and motivation). The current work examines two environmental variables, job characteristics and manager leadership style, and proposes that the latter has a mediating effect with regard to the relationship between job characteristics and job satisfaction. As shown in Figure 1, two paths are hypothesized: one is a direct path by which job characteristics directly influence job satisfaction; the other is an indirect path by which job characteristics influence manager leadership style, which then influences job satisfaction. This study examines these relationships based on a latent variable analysis.

LITERATURE REVIEW

Job characteristic variables

The job characteristics variables (JCV) not only include the specific characteristics of a job itself, but also extend to some related factors, such as the work-related environment, interpersonal interactions at work, and career prospects. The three major theoretical foundations of the current work are the theory of requisite task attributes (TRTA; Turner and Lawrence, 1965), theory of job characteristics (TJC; Hackman and Lawler, 1971), and the job characteristics model (JCM; Hackman and Oldham, 1975). TRTA proposes that there are required task attributes in relation to job characteristics: task variety, autonomy, required social interaction, optional

social interaction, knowledge and skill, and responsibility. Similarly, TJC considers the following six job characteristics: task variety, autonomy, task identity, feedback, cooperation, and friendship, with the first four being core factors and the later two interpersonal relationship ones. Finally, JCM has five job characteristics: skill variety, task identity, task significance, autonomy, and feedback.

The literature notes that the stronger the job characteristic attribute is (e.g., task variety, autonomy, identity, and feedback), the higher the employee satisfaction (Kalleberg, 1977). Job characteristics thus have a decisive influence on the motivation and satisfaction of employees, as well as how well staff interacts with each other. In the context of the current study, Lee (2000) indicates that taxation staff's job characteristics have a positive correlation with job satisfaction, and how such staff feel about their job characteristics is closely connected to attributes such as task variety, autonomy, identity, and cooperation, while friendship and feedback have weaker effects. Employees with different career orientations also have significant differently views with regard to resignation willingness, job characteristics, and job satisfaction (Lin and Hu, 2009; Wu, 2010). Based on these earlier works, it can be concluded that job characteristics are related to a number of objective attributes, including work environment, salary, welfare, security, promotion, interpersonal relationships, task variety, autonomy, and feedback, as well as subjective attributes and intrinsic rewards, such as a sense of honor, satisfaction and self-fulfillment.

The job characteristics scale used in this study is adopted from a revised translation of Hackman and Lawler's scale (Hackman and Lawler, 1971). The main for this is that many earlier works show that this scale is reliable and valid. Moreover, the focal issue examined in this work is based on six factors that these researchers have explored, namely variety, autonomy, identity, feedback, cooperation, and friendship. However, they only employed observed variables in their model analysis; the current study also includes latent variables in its

modeling, analysis and verification.

Manager leadership behaviors

The concept of manager leadership behaviors (MLB) can be used to examine how managers work to achieve the organization's goals while interacting with employees. There have been a range of different leadership theories, from early trait theory to behavioral pattern theory, the contingency model, and a number of more recent leadership theories. Trait theory aims to find out the personal characteristics of a successful leader, and assumes that good leaders are born, thus neglecting the possibility of learning new behaviors. Behavioral pattern theory emphasizes how a manager's work performance relates to their actual behaviors, and claims that a person can learn to be a good leaders, with a focus on a leader's overt behavior, such as, initiating structure leadership (ISL) and consideration leadership (CL) (Hemphill and Coons, 1957). ISL determines the degree a manager is able to encourage their subordinates to achieve their goals, considering issues such as whether employees finish their tasks on time, the quality of various work-related relationships, and if actual task performance meets the appropriate standards. CL refers to the extent to which a leader cares about their subordinates' feelings and respects their opinions, aiming to improve their welfare and job satisfaction.

Likert (1961) proposed the concepts of production-oriented leadership (POL) and employee-oriented leadership (EOL). POL stresses work skills, with the employees' professional abilities and skills seen as tools to achieve certain goals. In contrast, EOL considers the interactions that occur in the interpersonal relationships between leaders and subordinates, with the aim being that the needs of the latter are listened to when managers make their decisions. Fiedler (1967) proposed the contingency model that includes the three dimensions of leader-member relations, task structure, and leader's position power, which are used to define various situational factors that can affect job performance.

In the late 1980s, scholars began to see leadership as a process that aims to gather the efforts of staff to facilitate the achievement of organizational goals, with leadership being divided into the transactional and transformational styles. The first of these emphasizes work-related standards and goals, while the second focus on staff and leaders working together to achieve the organization's goal (Bass, 1985; Nanus, 1992; Roach and Behling, 1984). Managerial leadership styles have relationships with employee job satisfaction and the organization ability to innovate, with transformational leadership generally being more acceptable to employees, and having more positive effects on job satisfaction and innovation (Hsu and Yeh, 2010). In short, leadership refers to how a leader works to influence staff in order to achieve certain goals (Jacobs and Jaques, 1990). Job characteristics can affect leadership style and employee job satisfaction, and leadership style can also affect employee job satisfaction, with a positive correlation between these last two factors.

Because of the special characteristics of their work, tax officials not only need to be familiar with administrative law and taxation rules, but also need to have related accounting knowledge and the abilities to build good relationships with the public, their colleagues and managers. Official administrative practices in Taiwan mean that the interactions that occur between the managers and their subordinates in tax offices are related to both ISL and CL. They are related to ISL because the tasks that staff need to carry out are clearly defined, and thus the manager acts as a supervisor and monitors whether employees have achieved what they are supposed to.

They are also related to CL, as managers are encouraged to consider their subordinate' feelings and opinions, as well as the general quality of the work environment. This study uses a revised version of the manager leadership scale developed in Hemphill and Coons (1957), which is well-suited to the context of this work.

Job satisfaction variables

Job satisfaction variables (JSV) are subjective measures that describe the degree to which employees are satisfied about their work environment and the job itself. Job satisfaction refers to a personal mental reaction (an overall satisfaction tendency) based on job characteristics, working situation, and job related factors. Hoppock (1935) proposed the first job satisfaction scale, with Weiss et al. (1967) then developing the Minnesota Satisfaction Questionnaire (MSQ), which has both long and short forms. The long form has 100 questions about issues such as advancement prospects, salary, co-operation, supervision, and job security. The short form has only 20 questions, examining intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. Intrinsic satisfaction measures an employee's satisfaction with the job itself, and is related to their responsibilities, social status, and position within the organization. Extrinsic satisfaction measures satisfaction in relation to job prospects, salary, and social relations with one's superior and colleagues.

Finally, general satisfaction is related to an employee's overall degree of satisfaction, and is based on both internal and external factors.

This research adopts the revised MSQ scale, as this can be used to assess satisfaction in relation to many different job categories (Chen et al., 2011; Wu, 2010), and thus it is well-suited to the context of the current work.

RESEARCH DESIGN

Research sample

The research sample is composed of staff who currently work at the National Tax Administration of Taiwan Province, Ministry of Finance. Data were collected using convenience sampling. A total of 300 questionnaires were sent out and 200 were received, with 183 valid responses, representing a 61% response rate. The questionnaires included four parts, with items on the demographic variables, JCV scale, MLB scale, and JSV scale.

Demographic variables

This study gathered data on the following six demographic variables: gender marital status (married and single), age (30 years or younger, 30~40, 40~50, 50~60 years old, and over 60 years old), educational background (senior high school, vocational college, university, graduate school or above), years of service (three years or less, four-10 years, 10-20 years, and over 20 years), job position (manager or non-manager).

JCV scale

This scale contains 15 items and measures six job-related factors. Each item is answered on a 5-point Likert-scale (1=strongly disagree; 2=disagree; 3= agree; 4=very agree; and 5=strongly agree), with higher scores indicating higher job-related characteristics. Items 1, 6, and 14 measure task variety; 9, 11, and 14 measure autonomy; 5, 7, and 13 measure identity; 4 and 10 measure feedback; 2 and 8 measure cooperation; and 3 and 12 measure friendship. Higher scores for the four factors of task variety, autonomy, identity, and feedback mean that the respondent's job is more meaningful. Higher scores for cooperation and friendship mean that job characteristics and interpersonal relationships have a greater influence within the organization.

MLB scale

This scale contains 10 items and measures the ISL and CL. Each item is answered on a 5-point Likert-scale. Items 1, 3, 6, 9, and 10 measure ISL, while the others measure CL. A higher score for the ISL items indicates that the respondent's manager particularly emphasizes the operations of the organization, and carries out task-oriented and performance evaluations. A higher score for the CL items means that the manager cares about their subordinates, has sympathy for them, respects their opinions, and looks after their welfare.

JSV scale

This scale contains 12 items and measures the five factors related to job satisfaction. Each item is answered on a 5-point Likert-scale. Items 6 and 10 measure promotion satisfaction; 5 and 8 measure salary satisfaction; 9 and 11 measure satisfaction towards one's superior; 3 and 7 measure satisfaction towards how colleagues get along with each other; and items 1, 2 ,4, and 12 measure satisfaction towards the job itself. A higher scores represent greater job satisfaction. For instance, a higher score with regard to promotion satisfaction indicates that the staff feel better about their opportunities for promotion within the organization.

The structural model

The structural model used in this work is as follows:

$$\eta_1 = \gamma_{11}\xi + \zeta_1 \text{ ,}$$
$$\eta_2 = \gamma_{21}\xi + \beta_{21}\eta_1 + \zeta_2 \text{ ,} \qquad (1)$$

where η_1 and η_2 are the manager leadership behavior and job satisfaction variables, respectively; ξ is the job characteristics variable. γ_{11} is the coefficient parameter of η_1 on ξ. γ_{21} is the coefficient parameter of η_2 on ξ. β_{21} is the coefficient parameter of η_2 on η_1. ζ_1 and ζ_2 are structure errors for η_1 and η_2 respectively.

The measurement model for job characteristics is as follows:

$$x_q = \lambda_{q1}^x \xi + \delta_q \text{ , } q=1,2,\ldots,6 \text{ ,} \qquad (2)$$

where x_1 = task variety, x_2 = autonomy, x_3 = identity, x_4 = feedback, x_5 = cooperation, x_6 = friendship; λ_{q1}^x is the loading of response variable x on the factor q; δ is the measurement error term.

The measurement model for manager leadership behaviors is as follows:

$$y_p = \lambda_{p1}^y \eta_1 + \varepsilon_p \text{ , } p=1,2 \text{ ,} \qquad (3)$$

where y_1 = initiating structure leadership, y_2 is consideration leadership; λ_{p1}^y is the loading of response variable y on the factor p; and ε_p is the measurement error term. Likewise, the measurement model for job satisfaction is as follows:

Table 1. Demographic analysis.

Demographic variable	Category	Total	Percentage
Gender	Male	48	26.23
	Female	135	73.77
Marriage	Married	122	66.67
	Unmarried	61	33.33
Age	Less than 30 years	31	16.94
	30-40 years	62	33.88
	40-50 years	58	31.69
	50-60 years	30	16.39
	Over 60 years	2	1.1
Education	Senior high school	21	11.48
	Vocational college	57	31.15
	University	90	49.18
	Graduate or above	15	8.19
Years of service	Less than 3 years	26	14.21
	3-10 years	51	27.87
	10-20 years	55	30.05
	Over 20 years	51	27.87
Position	Manager	31	16.94
	Non-manager	152	83.06

$$y_m = \lambda^y_{m2}\eta_2 + \varepsilon_m \text{ , } m=3,4,\ldots,7 \text{ ,} \qquad (4)$$

Where y_3 = promotion satisfaction, y_4 = salary satisfaction, y_5 = satisfaction towards superior, y_6 = how colleagues get along with each other, y_7 = satisfaction towards the job itself. λ^y_{m2} is the loading of response variable y on the factor m; and ε_m is the measurement error term.

Analysis

Demographic variables analysis

The results of the analysis of the demographic variables are shown in Table 1. There were 73.77% female respondents and 26.23% males; most (66.67%) of the respondents were married, and the largest group was aged between 30 - 40 years old (33.88%). Since only 1.1% of the respondents were over 60, this group was merger with the 50-60 group in the statistical analysis. The smallest group of people had worked in the tax office for less than three years (14.21%), with the three other groups being roughly the same size. With regard to job

position, 16.94% of the respondents were managers, and the rest held non-managerial positions.

Statistical analysis

As shown in Table 2, the factor averages of the items on the JCV scale are between 3.005 and 3.995, while the overall average is approximately 3.35. Cooperation has the highest average, at 3.61, and autonomy has the lowest, at 3.12. This is because the complex nature of the work that tax officials have to do means that staff often need to cooperate to achieve the tasks that they are given by their managers. The low score for autonomy is because there are clear rules with regard to authority and responsibility in the tax office, and thus relatively little autonomy with regard to how work is carried out. Turning to the difference analysis, and taking gender as an example, there is a significant difference between male and female respondents with regard to task variety (p=0.028), but not for any of the other factors.

Table 3 gives the results of the descriptive statistical analysis for MLB. The factor averages of the items on the MLB scale are between 3.193 and 3.806. The overall average of the MLB scale is approximately 3.5, showing that the average response is between agree and very

Table 2. Descriptive statistical analysis of JCV.

		Variety	Autonomy	Identity	Feedback	Cooperation	Friendship
	Male	3.694(0.618)	3.055(0.425)	3.368(0.645)	3.291(0.659)	3.562(0.704)	3.218(0.757)
Gender	Female	3.474(0.586)	3.145(0.486)	3.491(0.564)	3.248(0.607)	3.625(0.671)	3.107(0.697)
	p-value	0.028*	0.256	0.212	0.677	0.579	0.354
	Married	3.592(0.588)	3.172(0.407)	3.543(0.570)	3.364(0.589)	3.643(0.601)	3.143(0.728)
Marriage	Unmarried	3.409(0.612)	3.021(0.570)	3.289(0.588)	3.049(0.630)	3.540(0.812)	3.122(0.687)
	p-value	0.051	0.041*	0.005**	0.001**	0.337	0.855
	Less than 30 years	3.397(0.692)	3.102(0.386)	3.166(0.509)	3.153(0.674)	3.442(0.852)	3.019(0.699)
	30-40 years	3.477(0.611)	3.013(0.588)	3.450(0.557)	3.137(0.617)	3.627(0.786)	3.137(0.693)
Age	40-50 years	3.496(0.580)	3.121(0.490)	3.484(0.614)	3.163(0.601)	3.600(0.580)	3.118(0.745)
	Over 50 years	3.692(0.545)	3.241(0.320)	3.588(0.587)	3.539(0.537)	3.686(0.556)	3.215(0.715)
	p-value	0.015*	0.091	0.029*	0.004**	0.187	0.931
	Senior high school	3.380(0.762)	3.015(0.324)	3.238(0.538)	3.142(0.673)	3.357(0.868)	3.142(0.808)
	Vocational college	3.567(0.538)	3.005(0.572)	3.421(0.532)	3.307(0.686)	3.710(0.597)	3.087(0.762)
Education	University	3.474(0.609)	3.185(0.433)	3.485(0.565)	3.227(0.576)	3.566(0.683)	3.111(0.665)
	Graduate or above	3.955(0.305)	3.333(0.308)	3.755(0.849)	3.433(0.530)	3.833(0.556)	3.466(0.639)
	p-value	0.019*	0.026*	0.064	0.479	0.103	0.310
	Less than 3 years	3.397(0.692)	3.102(0.386)	3.166(0.509)	3.153(0.674)	3.442(0.852)	3.019(0.699)
Years of	3-10 years	3.477(0.611)	3.013(0.588)	3.450(0.557)	3.137(0.617)	3.627(0.786)	3.137(0.693)
service	10-20 years	3.496(0.580)	3.121(0.490)	3.484(0.614)	3.163(0.601)	3.600(0.580)	3.118(0.745)
	Over 20 years	3.692(0.545)	3.241(0.320)	3.588(0.587)	3.539(0.537)	3.686(0.556)	3.215(0.715)
	p-value	0.134	0.108	0.027*	0.001**	0.520	0.716
	Manager	3.709(0.528)	3.215(0.350)	3.397(0.553)	3.5(0.532)	3.822(0.540)	3.177(0.725)
Position	Non-manager	3.495(0.610)	3.103(0.491)	3.471(0.594)	3.210(0.626)	3.565(0.696)	3.128(0.712)
	p-value	0.070	0.229	0.526	0.017*	0.054	0.727

Note: Standard errors appear in the parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

agree from these items. Regarding the difference analysis, there are significant differences only for marital status and age.

Table 4 gives the results of the descriptive statistical analysis for JSV. The factor averages of the items on the JSV scale are between 2.733 and 3.828. The overall average of JSV scale is approximately 3.3. Notable, satisfaction with colleagues has the highest average, 3.55, reflecting the fact that the respondents often need to work together. Promotion satisfaction has the lowest average, at 2.986, which reflects the limited opportunities for promotion at the National Tax Administration. Regarding the difference analysis, and taking the respondents' age as an example, there are significant differences only with regard to satisfaction with one's superior and the job itself.

The results of factor analysis show that the six factors of the JCV explain 71.43% of the variance in the 15

original variables (Table 5). The eigenvalues of the six factors are 4.48, 1.67, 1.46, 1.22, 1.06, and 0.79, respectively. The Cronbach's α is 0.688 and the measure of sampling adequacy (MSA) is 0.789, both of which are slightly lower than the recommended values of 0.7 and 0.8, respectively.

Furthermore, the two factors of MLB explain 74.65% of the variance in the 10 original variables. The eigen values of the two factors are 6.58 and 0.87, respectively. The Cronbach's α is 0.94, indicating excellent reliability, while the MSA (0.938) is much higher than the critical value of 0.8, and thus it is very appropriate to conduct factor analysis.

Finally, the five factors of JSV explain 82.56% of the variance in the 12 original variables. The eigenvalues of the five factors are 6.77, 1.01, 0.87, 0.68, and 0.55, respectively. The Cronbach's α is 0.93, indicating excellent reliability, whereas the MSA (0.911) is significantly

Table 3. Descriptive statistical analysis of MLB.

		Initiating structure leadership	Consideration leadership
Gender	Male	3.516(0.686)	3.495(0.764)
	Female	3.481(0.739)	3.514(0.756)
	p-value	0.773	0.886
Marriage	Married	3.601(0.720)	3.6(0.768)
	Unmarried	3.268(0.685)	3.327(0.704)
	p-value	0.003**	0.021*
Age	Less than 30 years	3.193(0.641)	3.264(0.727)
	30-40 years	3.458(0.672)	3.458(0.699)
	40-50 years	3.558(0.763)	3.531(0.806)
	Over 50 years	3.718(0.753)	3.806(0.729)
	p-value	0.027*	0.035*
Education	Senior high school	3.752(0.850)	3.780(0.836)
	Vocational college	3.600(0.754)	3.582(0.827)
	University	3.366(0.681)	3.426(0.701)
	Graduate or above	3.453(0.547)	3.346(0.606)
	p-value	0.080	0.171
Years of service	Less than 3 years	3.323(0.790)	3.453(0.770)
	3-10 years	3.470(0.601)	3.423(0.765)
	10-20 years	3.400(0.683)	3.400(0.644)
	Over 20 years	3.694(0.816)	3.741(0.821)
	p-value	0.096	0.079
Position	Manager	3.587(0.574)	3.567(0.638)
	Non-manager	3.471(0.751)	3.497(0.779)
	p-value	0.417	0.638

Note: Standard errors appear in the parentheses. $^*p < 0.05$, $^{**}p < 0.01$.

higher than the critical value of 0.8, indicating that it is very appropriate to conduct factor analysis.

Correlation analysis

With regard to the relations among the latent variables (Table 6), the correlations $\hat{\rho}_{\xi\eta_1}$ (=0.350), $\hat{\rho}_{\xi\eta_2}$ (=0.381), and $\hat{\rho}_{\eta_1\eta_2}$ (=0.538) are all positive and significant. For the relationships between the latent and observed variables (Table 7), the correlations range from 0.037 to 0.538, with only $\hat{\rho}_{\eta_1x_6}$ (=0.06) and $\hat{\rho}_{\eta_1x_3}$ (=0.037) being non-significant, and the others all being positive and significant. With regard to the relations among the observed variables (Table 8), the correlations range from 0.255 to 0.883, and all of these are positive and significant. Notable, both initiating structure and consideration leadership have

exactly the same degree of correlation with the five factors of job satisfaction. The strongest correlation for both of these is for satisfaction with one's superior, followed by satisfaction with the job itself, then with one's colleagues, promotion prospects, and salary.

Estimation and model evaluation

The initial structural model

Since the sample size in this study was rather small, at only 183 people, it is not appropriate to use maximum likelihood estimation, and thus the generalized least square method is used instead to estimate the parameters using the LISREL software. Table 9 lists the parameters estimations of the initial model. The non-standardized loadings of λ^y are between 0.86 and 1.141.

Table 4. Descriptive statistical analysis of JSV.

		Promotion	Salary	Superior	Colleagues	Job Itself
Gender	Male	2.906(0.908)	2.989(0.936)	3.333(0.807)	3.510(0.687)	3.432(0.677)
	Female	3.014(0.779)	3.237(0.798)	3.370(0.782)	3.566(0.676)	3.396(0.692)
	p-value	0.429	0.080	0.780	0.623	0.756
Marriage	Married	3.049(0.821)	3.262(0.867)	3.409(0.787)	3.659(0.617)	3.526(0.667)
	Unmarried	2.860(0.791)	2.991(0.760)	3.262(0.783)	3.336(0.745)	3.163(0.665)
	p-value	0.140	0.040*	0.232	0.002**	0.000***
Age	Less than 30 years	2.983(0.769)	3.177(0.725)	3.209(0.834)	3.403(0.757)	3.217(0.618)
	30-40 years	2.983(0.824)	3.048(0.881)	3.250(0.750)	3.483(0.677)	3.322(0.753)
	40-50 years	2.913(0.767)	3.155(0.828)	3.370(0.758)	3.551(0.679)	3.405(0.629)
	Over 50 years	3.125(0.933)	3.437(0.868)	3.703(0.791)	3.828(0.532)	3.75(0.615)
	p-value	0.711	0.208	0.036*	0.058	0.009**
Education	Senior high school	3.095(0.784)	3.214(0.699)	3.595(0.784)	3.761(0.538)	3.547(0.682)
	Vocational college	3.105(0.895)	3.271(0.845)	3.491(0.831)	3.561(0.768)	3.434(0.765)
	University	2.927(0.736)	3.161(0.820)	3.266(0.731)	3.488(0.661)	3.366(0.650)
	Graduate or above	2.733(0.961)	2.8(1.082)	3.1(0.849)	3.6(0.573)	3.333(0.617)
	p-value	0.322	0.284	0.094	0.413	0.696
Years of service	Less than 3 years	3.211(0.776)	3.346(0.771)	3.403(0.812)	3.5(0.583)	3.384(0.718)
	3-10 years	2.872(0.786)	2.892(0.844)	3.166(0.746)	3.392(0.783)	3.230(0.712)
	10-20 years	2.9(0.760)	3.127(0.806)	3.354(0.691)	3.518(0.666)	3.377(0.643)
	Over 20 years	3.078(0.902)	3.411(0.840)	3.539(0.882)	3.774(0.577)	3.622(0.650)
	p-value	0.236	0.010*	0.120	0.033*	0.034*
Position	Manager	3.193(0.771)	3.435(0.834)	3.516(0.651)	3.532(0.618)	3.596(0.618)
	Non-manager	2.944(0.818)	3.118(0.835)	3.328(0.809)	3.555(0.691)	3.366(0.695)
	p-value	0.120	0.055	0.228	0.860	0.089

Note: Standard errors appear in the parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$ $^{***}p < 0.001$.

The non-standardized loadings of λ^x are between 0.208 both reach significant level, meaning that job characteristics affect both manager leadership behaviors and job satisfaction. These loadings from each measurement model reach a significant level, indicating that these models are suitable. However, as seen in Table 10, RMR=0.169, SRMR=0.270, GFI=0.839, AGFI=0.763, PGFI=0.571, NFI=0.409, NNFI=0.338, CFI=0.474, and RMSEA=0.294; thus overall the initial model has a less than optimal fit with the empirical data, which need to be modified.

The modification indices (MI), which model the needs improvement, recommend the addition of two paths; one and 0.881. Moreover, $\hat{\beta}_{21}$=0.598 (t =6.836) reaches a significant level, indicating that manager leadership behaviors can predict job satisfaction in an effective manner. $\hat{\gamma}_{11}$=0.441 (t =4.315) and $\hat{\gamma}_{21}$ =0.156 (t =2.164)

path is y_4 (salary), which is not only affected by η_2, but also by η_1. The other path y_5 (superior) is also affected by η_1. The factor loading for λ_{41}^y is 9.12 and for λ_{51}^y is 21.75, which both exceed the critical value of 5; meaning that these two paths should be included in the revised model.

The final structural model

In order to avoid errors and to eliminate some parameters, which may cause over fitting, great care is to be taken in modifying the model. Some parameters are first added to enhance the model fit, and then some parameters removed until a parsimonious model is obtained. This research first adds two paths (see above) and then examines the effects of this on the model fit, with the

Table 5. Factor analysis.

	Eigenvalue	MSA	Cronbach's α
Scale of JCV (15 items)			
Factor 1	4.48		
Factor 2	1.67		
Factor 3	1.46	0.789	0.688
Factor 4	1.22		
Factor 5	1.06		
Factor 6	0.79		
Scale of MLB (10 items)			
Factor 1	6.58	0.938	0.94
Factor 2	0.87		
Scale of JSV (12 items)			
Factor 1	6.77		
Factor 2	1.01		
Factor 3	0.87	0.911	0.93
Factor 4	0.68		
Factor 5	0.55		

Note. JCV = Job Characteristic Variables. MLB= Manager Leadership Behaviors. JSV= Job Satisfaction Variables.

Table 6. The correlation between the latent variables.

	JCV	MLB	JSV
JCV	1		
MLS	0.350***	1	
JSV	0.381***	0.538***	1

$^{*}p < 0.05, ^{**}p < 0.01, ^{***}p < 0.001.$

Table 7. The correlation between the latent and observed variables.

	MLB	JSV	Variety	Autonomy	Identity	Feedback	Cooperation	Friendship
MLB	1							
JSV	0.538***	1						
Variety	0.274**	0.283**	1					
Autonomy	0.182*	0.275**	0.075	1				
Identity	0.183*	0.037	0.269**	0.340***	1			
Feedback	0.362***	0.433***	0.374***	0.313***	0.274**	1		
Cooperation	0.234**	0.254**	0.574***	0.075	0.089	0.294***	1	
Friendship	0.060	0.174*	0.162*	0.342***	0.001	0.286***	0.249**	1

$^{*}p < 0.05, ^{**}p < 0.01, ^{***}p < 0.001$

results indicating that the critical values do not improve much compared to the initial model. This study then removes three variables, x_2, x_3, and x_6, with low relia-bility, and the results show that while this leads to a slight improvement the fit is still not satisfactory. Finally, the two paths are added and the variables y_6, x_2, x_3, x_4, and

Table 8. The correlation between the observed variables.

	Initiating structure	Consideration	Promotion	Salary	Superior	Colleagues	Job itself
Initiating structure	1						
Consideration	0.883***	1					
Promotion	0.360***	0.310***	1				
Salary	0.324***	0.255**	0.717***	1			
Superior	0.688***	0.711***	0.573***	0.553***	1		
Colleagues	0.395***	0.358***	0.510***	0.552***	0.492***	1	
Job itself	0.496***	0.453***	0.653***	0.741***	0.603***	0.675***	1

$^{**}p < 0.01, ^{***}p < 0.001$

Table 9. Estimates of initial model and final model.

	Non-standardized solution		Completely Standardized solution
	Initial Model	Final Model	Final Model
λ_{11}^{x}	1.00	1.00	0.546
λ_{21}^{x}	0.208(0.101)	---	---
λ_{31}^{x}	0.359(0.103)	---	---
λ_{41}^{x}	0.650(0.110)	---	---
λ_{51}^{x}	0.881(0.124)	0.912(0.310)	0.501
λ_{61}^{x}	0.369(0.107)	---	---
λ_{11}^{y}	1.00	1.00	0.924
λ_{21}^{y}	0.866(0.059)	1.042(0.051)	0.962
λ_{32}^{y}	1.00	1.00	0.801
λ_{41}^{y}	---	-0.253(0.075)	-0.236
λ_{42}^{y}	1.058(0.093)	1.269(0.114)	1.016
λ_{51}^{y}	---	0.572(0.066)	0.519
λ_{52}^{y}	1.141(0.119)	0.579(0.076)	0.451
λ_{62}^{y}	0.860(0.108)	---	---
λ_{72}^{y}	1.081(0.103)	1.063(0.089)	0.843
β_{21}	0.598(0.087)	0.373(0.092)	0.434
γ_{11}	0.441(0.102)	0.842(0.296)	0.499
γ_{21}	0.156(0.072)	0.319(0.215)	0.220

are removed, and this results in the modified model. Compared with the initial model, the results of the modified one do not show any negative error variances or oversized standard errors. The modified one is fairly acceptable.

In terms of intrinsic fit indices, the parameter estimations of the modified model reach the significant level of 0.5, supporting the results with regard to intrinsic quality. Each variable's reliability in the modified model is greater than the initial model. With regard to the two newly added factor loadings, λ_{41}^{y} is negative, whereas λ_{51}^{y} is positive (Table 9). λ_{41}^{y} is negative (=-0.236), meaning that satisfaction with salary is negatively influenced by MLB, and

Table 10. The goodness of fit statistics of the initial model and final model.

		Critical value	Initial Model	Final Model
Global goodness of fit index	Chi-square (df)		190.842 (62)	23.811 (15)
	GFI	> 0.9	0.839	0.967
	AGFI		0.763	0.922
	RMR		0.169	0.039
	SRMR	< 0.05	0.270	0.041
	RMSEA		0.294	0.071
Comparative fit index	NFI		0.409	0.863
	NNFI	> 0.9	0.338	0.887
	CFI		0.474	0.940
	IFI		0.506	0.945
Parsimony goodness of fit index	IAIC		348.896	190.146
	MAIC	Smaller is better	1097.034	70.761
	SAIC		182.00	72.00

Note. GFI: goodness-of-fit; AGFI: adjusted GFI; PGFI: parsimonious GFI; NFI: Normed fit index; NNFI: Non-normed fit index; PNFI: parsimonious NFI;
CFI: Comparative fit index; RMSEA: root-mean-square error of approximation; IFI: incremental fit index; RFI: relative fit index; IAIC: Independence AIC;
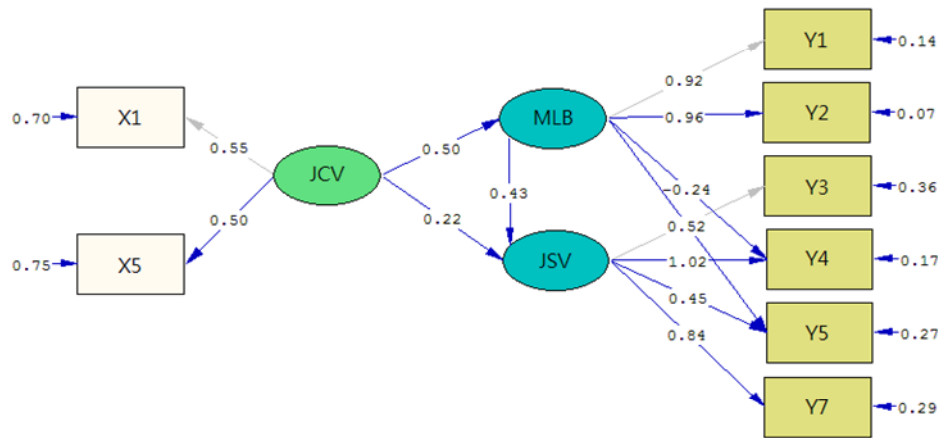MAIC: Model AIC; SAIC: Saturated AIC.

Figure 2. The plot of the final structural model.

thus higher scores of the MLB scale are associated with lower salary satisfaction. This is because managers at taxation offices need to monitor employees' performance, and this can make staff feel uncomfortable that their salary will be affected by their superior's subjective judgments. λ_{51}^{y} (=0.519) is positive, showing that satisfaction with one's superior can be positively affected by the MLB.

In terms of the model-fit indices, as shown in Table 10, the result for the modified model of χ^2 =23.811 (p= 0.0684) shows good support for the hypothesized model. GFI, AGFI, CFI, and IFI all exceed the critical value of 0.9. In summary, the results presented above indicate

that the modified model is better than the initial one. Since there are no items that need obvious improvement, the modified model is the final one (Figure 2).

This research further analyzes the direct or indirect influence of η on ξ, which can help clarify the linear relationships in the final model (Table 11). The three standardized direct effects are $\hat{\gamma}_{11} = 0.499$ (η_1 on ξ), $\hat{\gamma}_{21} = 0.22$ (η_2 on ξ), and $\hat{\beta}_{21}$ =0.435 (η_2 on η_1). The standardized indirect effect of η_2 on ξ is obtained using the following multiplicative decomposition: $\hat{\gamma}_{11} \times \hat{\beta}_{21}$ =0.217. Consequently, the standardized total effect is 0.437 (=0.22+0.217).

Table 11. Model effect review.

	ξ vs. η_1		ξ vs. η_2		η_1 vs. η_2	
	Effect	**Standardized**	**Effect**	**Standardized**	**Effect**	**Standardized**
Direct	0.842	0.499	0.319	0.220	0.373	0.435
Indirect	--	--	0.314	0.217	--	--
Total	0.842	0.499	0.633	0.437	0.373	0.435

Since collecting taxes is a complex and varied job, a manager's performance orientation is required that can encourage staff to work together and to solve any problems that arise. These are closely related to managers' leadership styles. In addition, the various elements of job satisfaction have different effects on the job characteristics of task variety and cooperation, with the greatest impacts because task variety, 0.76, is followed by cooperation, 0.7. It can thus be concluded that the more employees are able to use a variety of skills to solve work-related problems and fully cooperate with each other, the greater job satisfaction they will have.

Conclusion

As discussed above, in the descriptive statistics the mean scores for every factor in the JCV are all between agree and very agree, but in the structural equation model analysis only two factors (task variety and cooperation) have significant explanatory power. The reason for this difference is that descriptive statistics is a form of individual analysis which aims at calculating the mean for each factor on its own, whereas structural equation modelling considers how all the variables and factors affect each other, and then obtains the most appropriate model, based on the modification indices.

With regard to the MLB descriptive statistics analysis, initiating structure leadership and consideration leadership have almost the same means, between agree and very agree. Likewise, in the structural equation model initiating structure leadership and consideration leadership has almost the same factor loadings. This indicates that managers at tax offices not only carry out initiating leadership, with regard to task assignment, achieving work-related goals and using their authority, but also show concern and sympathy for their subordinates, thus increasing the job performance of the latter.

As for JSV descriptive statistic analysis, the mean scores for every factor in the JSV are all between agree and very agree. However, in the structural equation modelling the factor of satisfaction with one's colleagues is deleted, because it has no explanatory power; while the influence that MLB has on satisfaction with one's salary and superior is increased. Satisfaction with one's salary and superior is thus affected by two latent variables of MLB and JSV at the same time.

Since the mean for JSV is between agree and very agree, it is suggested that managers should work to enhance employees' job satisfaction by carrying out a complete task analysis and review, in order to make the work more interesting, streamline operational processes, implement more frequent job rotations and avoid job fatigue. Managers should also consider raising employees' salaries via professional allowances and performance bonuses, in order to raise salary satisfaction.

Past studies of job satisfaction mainly examined the differences among various observed variables, such as whether any differences exist with regard to satisfaction with promotion prospects based on the gender of the participants. It is reasonable and straightforward to extend the observed variables to the latent variables. In order to deal with the latent variable models, this article demonstrated the feasibility of using SEM methods by employing the approaches mentioned previously. The contribution of this study lies in the expansion and application of SEM by proposing a new structural relationship among job characteristics, managers' leadership behaviors, and employees' job satisfaction with regard to Taiwanese tax officials. A key point is that promotion of satisfaction has the lowest mean, and thus managers should work on that to implement a more transparent promotion system based on merit. It will raise employees' morale and lower resignation rate.

In summary, the results obtained through 183 questionnaires show that (1) there are positive correlations between the observed variables, and also the latent variables correlations; (2) task variety and cooperation are highly related to job characteristics; (3) initiating structure leadership, consideration leadership, salary satisfaction, and satisfaction towards one's superior are highly related to managers' leadership behaviors; and (4) promotion, salary, satisfaction towards one's superior, and satisfaction towards one's job are highly related to job satisfaction. Managers' leadership behaviors have a mediating effect on the relations between job characteristics and job satisfaction. A structural equation model was supported based on the results of the empirical analysis.

Some limitations need to be noted. First, the examinees in this research are southern Tax Bureau, so there is a regional limitation. Second, although a stratified sampling plan had been conducted, there is lack of manpower and some taxation offices are located in remote location;

hence the random sampling progress could not be controlled. Therefore the search result on external validity aspect is withheld. Finally, the search office is taxation collection unit; hence the result of this research is not completely appropriate to make inference about other organizations.

In future works, more multi-group structural equation modelling can be carried out based on the model proposed in this study, and the means of the latent variables can also be obtained and compared based on different demographic factors (e.g., marital status). Future studies can also the test the observed variables based on the assessment of the measurement model using different samples, and could test the latent variables with different samples by using structural equation modelling.

Conflict of Interests

The authors have not declared any conflict of interests.

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APPENDIX

LISREL code for the initial model

```
TITLE AA
DA NI=13 NO=183
LA
*
Y1 Y2 Y3 Y4 Y5 Y6 Y7 X1 X2 X3 X4 X5 X6
KM
<Input correlation matrix>
MO NY=7 NE=2 NX=6 NK=1 PS=DI GA=FU,FI BE=FU,FI TD=SY,FI TE=SY,FI
FR BE(2,1) GA(1,1) GA(2,1) LX(2,1) LX(3,1) LX(4,1) LX(5,1) LX(6,1) LY(2,1) LY(4,2) LY(5,2) LY(6,2) LY(7,2) TD(1,1)
TD(2,2) TD(3,3) TD(4,4) TD(5,5) TD(6,6)
FR TE(1,1) TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6) TE(7,7)
VA 1 LY(1,1) LY(3,2) LX(1,1)
PD
OU GLS MI RS SC TV EF ND=3 AD=OFF
```

SIMPLIS code for the final model

```
Title: AA

Observed Variables: Y1 Y2 Y3 Y4 Y5 Y6 X1 X2
Correlation Matrix:
<Input correlation matrix>
Sample Size: 183
Latent Variables: Ksi Eta1 Eta2
Relationships:
X1=1*Ksi
X2=Ksi
Y1=1*Eta1
Y2 Y4 Y5=Eta1
Y3=1*Eta2
Y4-Y6=Eta2
Eta1=Ksi
Eta2=Eta1
Eta2=Ksi
Options: RS MI SC TV EF ND=3 AD=OFF ME=GLS
Path Diagram
End of Problem
```