

# THE DEVELOPMENT OF THE JOB EMBEDDEDNESS MEASUREMENT MODEL OF EMPLOYEES IN THE TELECOMMUNICATIONS INDUSTRY IN THAILAND

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## ABSTRACT

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The objective of this research was to test a job embeddedness measurement model of employees in the telecommunications industry in Thailand. The sample group was comprised of 510 employees. The research instrument was a questionnaire on the variables of job embeddedness categorized into three parts: fit, links, and sacrifice. The questionnaire consisted of 29 items. Content validity was examined by five experts. The discrimination power from the corrected item-total correlation was found to be between .327 and .660; while the overall reliability from the measurement of internal consistency using Cronbach's coefficient alpha was .900. According to second-order confirmatory factor analysis, the results showed that the job embeddedness measurement model was consistent with the empirical data. The p-value was .01 of  $\chi^2$ , CFI > 0.987, SRMR ≤ 0.056, and RMSEA < 0.038 fit the criteria which had the significance of  $\chi^2$ , CFI = .92, SRMR = .80, and RMSEA = .07. The construct reliability of the overall job embeddedness of employees was at 0.93 and the three dimensions revealed the followings: fit (0.82), links (0.78), and sacrifice (0.87). Additionally, the average variance extracted from overall job embeddedness was 0.99 and for the three dimensions, fit, links, and sacrifice, it was 0.99, 0.98, and 0.98 respectively.

**Keywords:** Job embeddedness; measurement model; employees; telecommunications industry

## 1. INTRODUCTION

Mitchell et al. (2001) have explained that the definition of job embeddedness is a net or a web in which an individual can become stuck. An individual with high job embeddedness is more likely to become attached to others. Yao et al. (2004) have also revealed that job embeddedness is a force that makes an individual that decides to resign continue his or her job.

Lee et al. (2014) have attempted to unfold a model of voluntary turnover. After reviewing several articles and discussing on voluntary employee turnover, they focused on the question "Why do people stay?" Their works included the notions of fit, links, and sacrifice. For instance, Mitchell has stated that the reasons why she has chosen to stay at the Michael G. Foster School of Business at the University of Washington are that

she is fit for or feels comfortable with this university in Seattle, she feels that she connects well with the doctoral students and the community, and she would have to sacrifice something if she left her entails such as her being an advisor of doctoral students (Lee and Mitchell, 2011). This is the origin of job embeddedness.

Mitchell et al. (2001) divided job embeddedness into three elements as follows. First, fit means that employees perceive themselves as fitting their organization. That is, their careers goals, values, job knowledge, needs, skills, and competences are congruent with what the organization in which they are currently working requires. Employees also perceive themselves as fitting with the community. They consider the atmosphere, location, facilities, nightspots, and the group activities for the leisure of their community suitable for what they need. The more clearly employees perceive themselves fitting their organization and community, the higher is the job embeddedness that they have. Second, links means that employees perceive that they have both formal and informal relationships with their organization. They have a relationship with the other employees or groups of employees in the organization in which they are currently working. Moreover, employees perceive a link with both the living and non-living elements in their community. For example, they have a relationship with their family members, friends, homes, neighbors, buildings, and the places they are acquainted with. The more clearly they feel that they are linked to their organizations and community, the higher will be their job embeddedness. Third, sacrifice means that the employees perceive that they will lose their physical or psychological benefits in the present or the future if they resign from their current jobs. Sacrifice can be categorized according two types. The first type is organizational sacrifice which is when employees have close colleagues, are responsible for good projects, feel cool while working, have job stability and a chance to advance their careers, receive a greater pension, have a chance to gain a promotion, get a good salary, and receive health care from an organization. The second type is community sacrifice which is that employees have pleasant and safe accommodations, friendly neighbors that are not close colleagues, and convenient ways to commute to work and live with their family. The more clearly they perceive that they are making an organizational and community sacrifice, the higher will be their job embeddedness.

In the beginning, job embeddedness was measured using the composite scale of Mitchell et al. (2001), who created the concept of job embeddedness. This measurement was designed to measure all 6 dimensions of job embeddedness, that is, fit, links, and sacrifice, each of which has two sub-dimensions: on the job and off the job. The average score for all 6 sub-dimensions is calculated, and there are two types of measurement. The first type is a measurement with 42 items, and the second type is a measurement with only 21 items. The items are Likert scale items, which allow the respondents to rate their level of agreement or disagreement with the provided statements. This measurement is a formative scale measurement, i.e. the respondents need to answer whether they agree or disagree with the causes of job embeddedness. For example, for organization fit, the statement used to ask the respondents is "My job utilizes my skills and talents well." The respondents were 177 grocery store employees, and 208 nurses and hospital staff: administration, maintenance, admitting, the cafeteria and special services. They developed the job embeddedness measurement using statements from 4 sources as follows: 1. statements on demographic and descriptive items for evaluating marital state, number of childhoods, and years at one's job; 2. an attitudinal measure which was adjusted for measuring job fit; 3. a discussion about structure and elements and statements about job embeddedness; and 4. interviews with 33 grocery stores and hospital staff. According to the research findings of Mitchell et al. (2001), using the sample group from grocery stores, it was found that the overall reliability of job embeddedness was at .85. The reliability of community fit was at .78, and the factor loadings were between .53 and .84. The reliability of organizational fit was at .75, and the factors loadings were between .51 and .80. The reliability of community links was at .77, and the factors loadings were between .67 and .93. The reliability of organizational links was at .65, and the factor loadings were between .37 and .83. The reliability of community-related sacrifice was at .61, and the factor loadings were between .68 and .80. The reliability of organization-related sacrifice was at .82, and the factor loadings were between .47 and .74.

According to the above research findings from the sample group from the hospital, it was found that the overall reliability of job embeddedness was at .87. The reliability of community fit was at .79, and the factor loadings were between .59 and .87. The reliability of organization fit was at .86, and the factors loadings were between .40 and .82. The reliability of community links was at .50, and the factors loadings were between .07 and .93. The reliability of organizational links was at .62, and the factor loadings were between .32 and .81. The reliability of community-related sacrifice was at .59, and the factor loadings were between .76 and .85. The reliability of organization-related sacrifice was at .82, and the factor loadings were between .45 and .75.

Moreover, according to the research findings of Mitchell et al. (2001), it was revealed that there was a correlation between job embeddedness and intent to leave one's job at a statistical significance level of .01, with  $r = -.41$  (from the sample group of grocery stores) and  $r = -.47$  (from the sample group of the hospital). Job embeddedness had a correlation with actual voluntary turnover at a statistical significance level of .01, with  $r = -.24$  (from the sample group of grocery stores) and  $r = -.25$  (from the sample group of the hospital).

Crossley et al. (2007) replicated 40 statements for measuring the job embeddedness of Mitchell et al. (2001). A 5-response scale (5 = strongly agree) questionnaire was used to measure the quality of the instruments with 306 employees. It was discovered that the reliability of organizational fit, organizational links, organizational sacrifice, community fit, community links, and community sacrifice was at .87, .68, .86, .86, .58, and .70 respectively.

Then, Crossley et al. (2007) developed a global job embeddedness measurement, which was a reflective scale measurement with 7 statements. The respondents needed to respond to job-related and job-unrelated statements by rating their agreement, such as "I feel attached to this organization." They developed the job embeddedness measurement by testing 87 employees. For instance, they found that the coefficient alpha was at .88, and the corrected item-total correlations were between .60 and .75. By analyzing with exploratory factor analysis, it was found that the factor loading of a single-factor solution accounted for 51% of the total variance and the factor loadings were between .58 and .83.

Accordingly, the same author used the job embeddedness measurement to measure 306 employees from caregiving organizations. By analyzing using confirmatory factor analysis, it was found that  $\chi^2 = 79.95$ ,  $p < .05$ , and there was consistency with the empirical data examined from CFI = .94, GFI = .93, SRMR = .04 and the reliability of the Cronbach alpha was at .89 and the factor loadings were between .42 and .90.

According to the research findings of Crossley et al. (2007), it was found that the global job embeddedness measurement predicted variance in the intent to search, the intent to quit, and voluntary turnover over the composite measure of job embeddedness.

Later, Kraimer et al. (2012) divided the variables of job embeddedness into organizational embeddedness, which is embedded with the organizational environment in which an individual is embedded, such as promotional opportunity; and community embeddedness which is embedded with community in which an individual is embedded such as quality of leisure activities and family environment. Jiang et al. (2012) conducted a meta-analysis with 65 samples, and it was found that organizational embeddedness and community embeddedness had a correlation with turnover, with  $r = -.19$  and  $-.12$  respectively. In addition, it was found that organizational embeddedness, community embeddedness, job satisfaction, affective commitment, and job alternatives could predict employees' voluntary turnover. Tanova and Holtom (2008) studied the job embeddedness and voluntary turnover of a sample group from different countries, and it was revealed that in Denmark and Italy, organizational embeddedness could predict voluntary turnover, and in Finland and Spain community embeddedness could predict voluntary turnover.

It can be seen that there are several researchers that have focused on job embeddedness because the job embeddedness of employees is considered essential for organizations. Moreover, studies have found that the job embeddedness of employees can predict organizational citizenship behaviors (Lee et al., 2004) and affect job performance (Lee et al., 2004; Kapil and Rastogi, 2017; Cho and Ryu, 2009; Sekiguchi, Bruton, and Sablinski, 2008; Sun et al., 2012; Karatepe and Karadas, 2012). Job embeddedness also has been seen to have a correlation with job satisfaction (Nafei, 2015), and an employee with high job embeddedness will also exhibit high work motivation (Lee et al., 2004). In the past years, the telecommunications industry has developed rapidly, and there is competition between stated-owned and private organizations in terms of business operations and customer services. The development of a job embeddedness measurement is a way to obtain an effective questionnaire that may lead to study of the levels of overall job embeddedness and its components. Moreover, organizations can apply the results to enhance job embeddedness in some employees that have a low job embeddedness level. In addition, further studies can be done to find out whether job embeddedness correlates with the employees' job performance, intention to turnover, organizational engagement or job satisfaction, which administrators in telecommunications in Thailand need. Therefore, research on the job embeddedness of employees is essential, especially for employees in the telecommunications industry. This research aimed to test a job embeddedness measurement model of employees in the telecommunications industry in Thailand. The results of this research will be highly beneficial for the measurement of job embeddedness of future employees.

## 2. RESEARCH METHODOLOGY

### Population and samples

The population was 13,364 employees working in two headquarters of state enterprises in the telecommunications industry in Thailand. Thompson (2004) suggested that a sample size should be at least 200 people. Furthermore, Meyers et al. (2006) suggested that an appropriate sample size depends on the number of questions; if there are 10, 25, 90, or 500 questions, the sample size should be 200, 250, 400, and 700-1,000 people respectively. Comrey and Lee (1992) suggested that if a sample size for the factor analysis is 500 people,

the quality of the questionnaire will be very good. Since in this research, there were 29 items, the sample size was 500 people selected using proportional stratified random sampling. Therefore, the researcher distributed questionnaires to 605 respondents in case some of the employees did not respond or responded incompletely. Questionnaires that were completely responded to were collected from 520 employees.

### Research instruments

The job embeddedness questionnaire was created based on the definition of Mitchell et al. (2001). The questionnaire had 29 items consisting of 10 items concerning fit: 5 items concerning organization fit and 5 items concerning community fit; 8 items concerning links: 5 items concerning organizational links and 3 items concerning community links; and 11 items concerning sacrifice: 9 items concerning organizational sacrifice and 2 items concerning community sacrifice. Each item provided choices ranging from lowest to low, moderate, high, and highest with scores of 1, 2, 3, 4, and 5 respectively.

The questionnaire was evaluated by 5 experts for the content validity, which was between 0.67 and 1.00, by using the index of item-objective congruence. The content validity was eligible in accordance with the criteria of Rovinelli and Humbleton (1976); a question with content validity of 0.50 or greater is considered eligible. The researcher tested the questionnaire with 30 employees at a telecommunications company in Thailand, TOT Public Company Limited, in order to ascertain the discrimination power by finding the corrected item-total correlation. It was found that the corrected item-total correlations were between .327 and .660. This was eligible in accordance with the criteria of Tirakanan (2008), where the corrected item-total correlation must be positive and .2 or greater. Then reliability was ascertained with the measure of internal consistency using Cronbach's coefficient alpha. The reliability of fit, links, sacrifice, and overall job embeddedness was at .861, .749, .883, and .900 respectively. In detail, it was found that the reliability of organizational fit, community fit, organizational links, community links, organizational sacrifice, and community sacrifice was at .869, .827, .770, .658, .876, and .905 respectively, as seen in Table 1.

**Table 1:** Index of Item-Objective Congruence (IOC), Corrected Item-Total Correlation, and Cronbach's Coefficient Alpha

| Variables                 | Items | IOC       | Corrected Item-Total Correlation | Cronbach's Coefficient Alpha |
|---------------------------|-------|-----------|----------------------------------|------------------------------|
| Fit                       | 10    | 0.83-1.00 | 0.395-0.534                      | .861                         |
| Fit with the Organization | 5     | 0.83-1.00 | 0.449-0.510                      | .869                         |
| Fit with the Community    | 5     | 1.00-1.00 | 0.395-0.534                      | .827                         |
| Links                     | 8     | 1.00-1.00 | 0.350-0.543                      | .749                         |
| Links to the Organization | 5     | 1.00-1.00 | 0.350-0.543                      | .770                         |
| Links to the Community    | 3     | 1.00-1.00 | 0.392-0.523                      | .658                         |
| Sacrifice                 | 11    | 1.00-1.00 | 0.327-0.660                      | .883                         |
| Organizational Sacrifice  | 9     | 1.00-1.00 | 0.359-0.626                      | .876                         |
| Community Sacrifice       | 2     | 1.00-1.00 | 0.327-0.375                      | .905                         |
| Job Embeddedness          | 29    | 0.83-1.00 | 0.327-0.660                      | .900                         |

### Data analysis

The researcher used confirmatory factor analysis in order to examine construct validity. Four indexes of goodness of fit were the statistics used to test the consistency between the measurement model and empirical data, as Hair et al. (2010) suggested that  $\chi^2$  must be significant, CFI >.92, SRMR ≤.80, and RMSEA <.07. The construct reliability of job embeddedness and all three dimensions was found using formula  $P_c = (\sum \lambda)^2 / (\sum \lambda)^2 + \sum \theta$  when  $P_c$  was the construct reliability of job embeddedness and all three dimensions,  $(\sum \lambda)^2$  was the sum of the standardized factor loading of the squared variable, and  $\sum \theta$  was the sum of the variance of standard error. The average variance extracted of job embeddedness and for all three dimensions were found using a formula  $P_v = \sum \lambda^2 / \sum \lambda^2 + \sum \theta$  when  $P_v$  was the average variance extracted of job embeddedness and all three dimensions,  $\sum \lambda^2$  was the sum of each standardized factor loading of the squared variable, and  $\sum \theta$  was the sum of the variance of the standard error, as Angsuthotkun et al. (2009) suggested.

## 3. RESULTS AND DISCUSSION

### Personal factors of the sample group

After studying the personal factors of the sample group, which was 520 employees, it was found that 62.89 percent were female, and 37.11 percent were male. 59.23 percent were married, divorced, widowed, or living separated, and 40.77 were single. 39.23 percent were 41 to 50 years of age, 39.23 percent were older than 50 years, 13.85 percent were 31 to 40 years of age, and 7.69 percent were 20 to 30 years of age. 48.65 percent had 21 to 30 years of work experience, 19.42 percent had more than 30 years of work experience,

18.65 percent had 1 to 10 years of work experience, and 13.27 had 11 to 20 years of work experience. 52.31 percent had a bachelor's degree, 40.77 percent had a higher degree, and 6.92 percent had a lower degree. 54.95 percent had a salary between 50,001 and 100,000 Baht, 37.12 percent had a salary between 15,000 and 50,000 baht, and 8.27 percent had a salary greater than 100,000 baht. 73.65 percent domiciled in Bangkok metropolitan regions, and 26.35 percent domiciled in other regions. 82.12 percent lived in their own houses or with relatives, and 17.88 percent lived in other places.

### Basic assumptions of the factor analysis

In this research, the researcher tested the basic assumption for the factor analysis in terms of (1) the suitability of the correlation between the variables for the factor analysis and (2) whether the correlation between the variables was too high causing multicollinearity.

The researcher found the suitability of the correlation between the variables for the factor analysis of the job embeddedness of employees using Bartlett's test of sphericity (Angsuchot et al., 2009) and the measure of sampling adequacy of latent variables considering the criteria of Hair et al. (2010). They suggested that Bartlett's test of sphericity should be statistically significant ( $p < .05$ ); and the measure of sampling adequacy of greater than .8 was considered highly suitable, that between 0.70 and 0.79 was considered quite suitable, that between 0.60 and 0.69 was considered moderately suitable, that between 0.50 and 0.59 was considered poorly suitable, and that lower than 0.50 was considered unsuitable. According to Bartlett's test of sphericity, the statistical significance was at the .01 level, and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was at .875, which was considered highly suitable for the factor analysis, as seen in Table 2.

**Table 2:** KMO and Bartlett's Test of Sphericity

| KMO  | Bartlett's Test of Sphericity |     |      |
|------|-------------------------------|-----|------|
|      | $\chi^2$                      | df  | p    |
| .875 | 8031.418**                    | 406 | .000 |

\*\*Statistically significant at the .01 level

In order to analyze whether the correlation between the variables was too high and it caused multicollinearity, the researcher analyzed the Pearson product-moment correlation coefficient in order to examine whether the correlation between the observed variables (items) was too high causing multicollinearity. In this research, the observed variables were 29 items. When finding the correlation between all 406 pairs, it was found that the correlation coefficient of 335 pairs was at a statistical significance level of .01, with a correlation between .112 and .836; correlation coefficient of 15 pairs was at a statistical significance level of .05, with a correlation between .092 and .111; and the correlation coefficient of 56 pairs was not statistically significant. These results were consistent with what Hair et al. (2010) suggested; a correlation must not be greater than .90. Moreover, Kline (2005) stated that a correlation greater than .85 would cause multicollinearity. Since the correlation between the observed variables was not greater than .85, it was suitable for the factor analysis.

### Goodness of fit of the job embeddedness measurement model of employees

In this research, the variable of job embeddedness of employees was divided into three dimensions, and there were 29 items with a sample group of 510 people. The researcher used indexes of goodness of fit, as Hair et al. (2010) suggested that four indexes of goodness of fit be used for a sample group of more than 250 people and variables of more than 12 but fewer than 30. Four indexes were  $\chi^2$  which had to be significant, CFI  $> .92$ , SRMR  $\leq .80$ , and RMSEA  $< .07$ . The results showed that, after analyzing the job embeddedness measurement model of employees before adjusting the model using second-order confirmatory factor analysis, only index  $\chi^2$  and SRMR fit, but index CFI and RMSEA did not fit. Accordingly, the job embeddedness measurement model of employees was not likely to be acceptably consistent with the empirical data, as Table 3 indicates. Therefore, the researcher adjusted the model in order to meet the criteria. After adjusting the model, the results showed that they all fit in accordance with all of the indexes of goodness of fit, which were  $\chi^2$ , CFI, SRMR, and RMSEA. This revealed that the job embeddedness measurement model of employees was consistent with the empirical data, as seen in Table 3. This showed that the job embeddedness measurement model had construct validity. Job embeddedness comprised of fit, links, and sacrifice as proposed by Mitchell et al. (2001), was considered to be suitable. Interested researchers or administrators that want to apply the job embeddedness measure in their studies can use it confidently.



**Table 3:** Comparison between the Criteria and Results Used to Examine the Consistency of the Job Embeddedness Measurement Model of Employees (before Adjusting the Model and after Adjusting the Model)

| Indexes of Goodness of Fit | Criteria                     | Results                               | Comparison between Criteria and Results |
|----------------------------|------------------------------|---------------------------------------|---|
| Before Adjusting the Model |                              |                                       |   |
| $\chi^2$                   | Significant p-value Expected | Chi-square=3673.762, df=374<br>p=.000 | Fit                                     |
| CFI                        | >.92                         | 0.846                                 | Not Fit                                 |
| SRMR                       | ≤.80                         | 0.093                                 | Fit                                     |
| RMSEA                      | <.07                         | 0.130                                 | Not Fit                                 |
| After Adjusting the Model  |                              |                                       |   |
| $\chi^2$                   | Significant p-value Expected | Chi-square=546.790, df=313<br>p=.000  | Fit                                     |
| CFI                        | >.92                         | 0.987                                 | Fit                                     |
| SRMR                       | ≤.80                         | 0.056                                 | Fit                                     |
| RMSEA                      | <.07                         | 0.038                                 | Fit                                     |

### Factor loading, standard error (SE), and coefficient of the determination ( $R^2$ ) of job embeddedness of employees

It was found that the highest factor loading of the links was 1.00, and the second and third highest was fit and sacrifice, with factor loading of 0.96 and 0.45 respectively.

After examining all 10 items concerned fit, it was found that the factor loadings were between 0.48 and 0.63 at a statistical significance level of .01, all 8 items concerned links, it was found that the factor loadings were between 0.43 and 0.67 at a statistical significance level of .01, and all 11 items concerned sacrifice, it was found that the factor loadings were between 0.38 and 0.85 at a statistical significance level of .01. Regarding fit, the factor loading of item number E8, "The facilities in your neighborhood fit you," was at 0.63, which was higher than the other items' in the dimension. In terms of links, the factor loading for item number E11, "You have many close co-workers," was at 0.67, which was higher than the other items' in the dimension. Lastly, regarding sacrifice, the factor loading for item number E23, "If you resign from your workplace, you will sacrifice your job advancement," was at 0.85, which was higher than the other items' in the dimension. The results showed that items number E8, E11, and E23 were more significant for the dimension measurement than the other items in the same dimension. The job embeddedness measurement model of employees after adjusting the model which showed the variable, dimensions, items, and factor loadings as seen in Figure 1.

The coefficient of determination or  $R^2$  was a proportion of the dimension that could explain the variation of variables of the job embeddedness of employees. The closer  $R^2$  is to 1, the more clearly the variation of the variables of the job embeddedness of employees can be explained by the dimension. The  $R^2$  of dimensions fit, links, and sacrifice was at 0.92, 0.99, and 0.20 respectively. When examining the  $R^2$  of each item in each dimension, the  $R^2$  of the items in the dimension fit was between 0.23 and 0.39. The  $R^2$  of the items in the dimension links was between 0.19 and 0.44, and the  $R^2$  of the items in the dimension sacrifice was between 0.14 and 0.72.

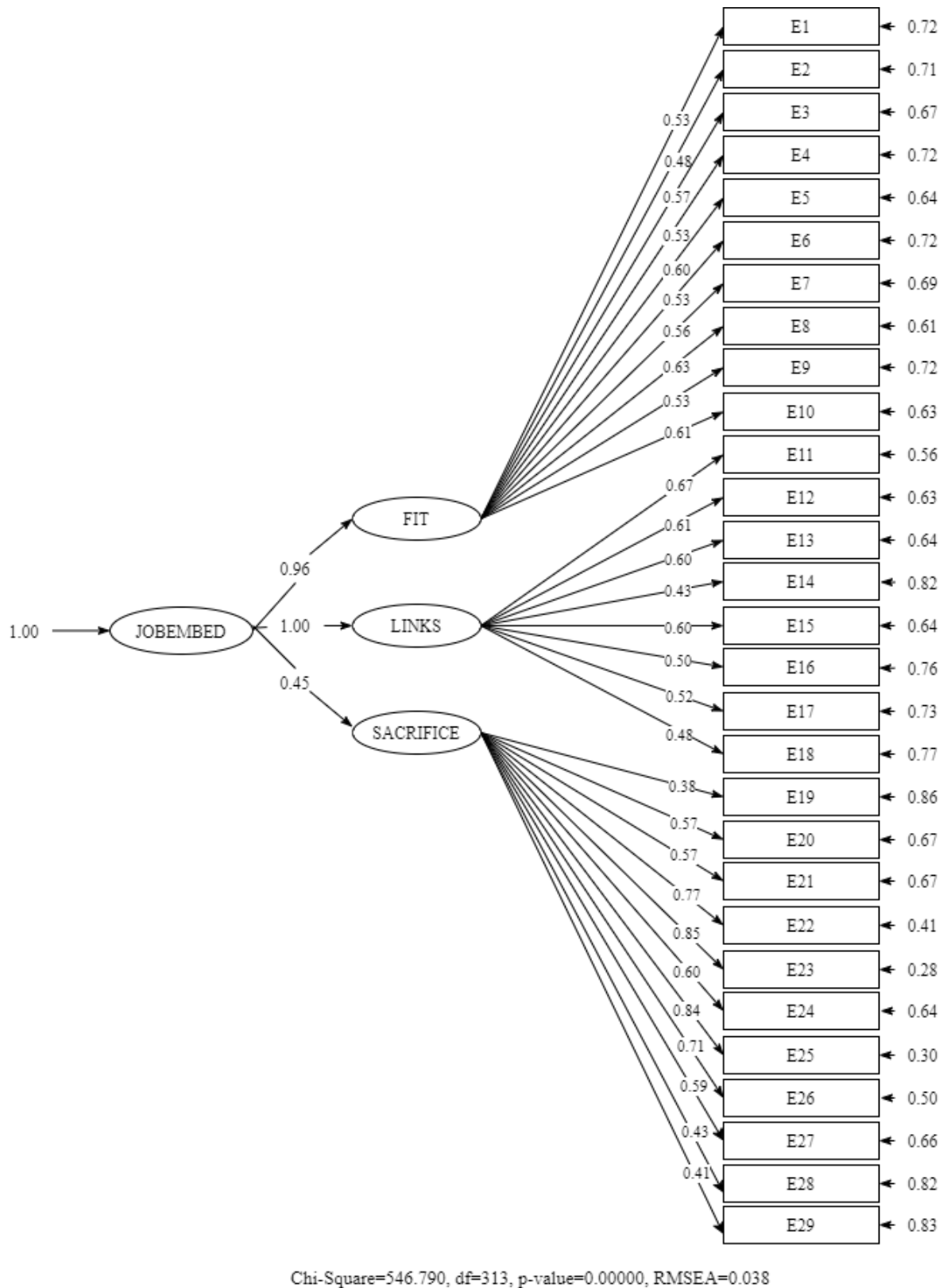
### Construct reliability and average variance extracted of job embeddedness of employees

According to Table 4, the construct reliability of fit, links, and sacrifice was at 0.82, 0.78, and 0.87 respectively, which was higher than 0.70. Based on the explanation of Hair et al. (2010), a construct reliability of greater than 0.70 is considered high. It reflects how reliable the observed variables, which were the items in each dimension, could measure the construct of their dimensions. The construct reliability of the job embeddedness of employees was at 0.93, which was higher than 0.70. This showed that all three dimensions could measure the latent variables of the job embeddedness of employees with high reliability.

The average variance extracted of the dimensions of the job embeddedness of employees, which were fit, links, and sacrifice, was at 0.99, 0.98, and 0.98 respectively. The average variance extracted of the latent variables of job embeddedness was at 0.99. This suggests that all of the items in this research: 10 items on fit, 8 items on links, and 11 items on sacrifice could explain fit, links, and sacrifice. Moreover, all 29 items of three dimensions could explain the variables of job embeddedness because the average variance extracted of the 29 items was at 0.99, which was higher than the criteria of Hair et al. (2010); it should at 0.50 or more.

**Table 4:** Construct Reliability and Average Variance Extracted of the Variable and Dimensions of the Job Embeddedness of Employees

| Dimensions/Variable | Construct Reliability | Average Variance Extracted |
|---------------------|-----------------------|----------------------------|
| Fit                 | 0.82                  | 0.99                       |
| Links               | 0.78                  | 0.98                       |
| Sacrifice           | 0.87                  | 0.98                       |
| Job Embeddedness    | 0.93                  | 0.99                       |



**Figure 1:** Job Embeddedness of Employees Measurement Model

After the content validity was analyzed, the index of item-objective congruence of the job embeddedness questionnaire of the employees was at between 0.67 and 1.00. All 29 items were congruent with the criteria of Rovenelli and Humbleton (1976) and all 29 items with congruence of greater than 0.50 means that the items is highly congruent with the content needed to be measured.

In order to determine the discrimination power, when analyzing the corrected item-total correlation of each item, it was revealed that it was between 0.327 and 0.660, which was eligible in accordance with the criteria of Tirakanan (2008); if an item's discrimination power is positive and at more than .2, that item can differentiate job embeddedness between the individual employees.

Reliability which was found by determining the internal consistency from Cronbach's coefficient alpha (Cronbach, 1990) for the overall job embeddedness of the employees' questionnaire, was at 0.990, and the reliability of the dimensions fit, links, and sacrifice was at 0.861, 0.749, and 0.883 respectively, which was between a quite high and high level in accordance with the criteria of Kline (2000) and DeVellis (2012). The acceptable reliability of the questionnaires was at 0.70 or more but lower than 0.80 ( $\leq 0.70 \alpha < 0.80$ ), and the good reliability of the questionnaire was at 0.80 or more but lower than 0.90 ( $\leq 0.80 \alpha < 0.90$ ). This revealed that the developed job embeddedness questionnaire was consistent.

By analyzing the second order confirmatory factor analysis, it was revealed that this job embeddedness measurement model of employees collected data from 510 employees. The variables of the employees were divided into three dimensions. There were 29 items in total, so the researcher used the index of goodness of fit that Hair et al. (2010) suggested, i.e. four indexes of goodness of fit were suitable for the sample group of more than 250 people and the variables of more than 12 but fewer than 30. Those four indexes indicated that the p-value was .01 for  $\chi^2$ , CFI  $> .92$ , SRMR  $\leq .80$ , and RMSEA  $< .07$ . The results before adjusting the model showed that they fit only some indexes, but after adjusting the model, the p-value was .01 for  $\chi^2$ , CFI = 0.987, SRMR = 0.056, and RMSEA = 0.038. They all fit all of the indexes. This showed that the job embeddedness measurement model of employees was consistent with the empirical data, and the developed job embeddedness questionnaire of the employees had construct validity. They could be measured following the construction and meaning of the job embeddedness of employees which was divided into three dimensions fit, link, and sacrifice, in accordance with the definition of Mitchell et al. (2001).

By examining the construct reliability of the overall job embeddedness measurement of employees and dimensions fit, links, and sacrifice, it was at 0.93, 0.82, 0.78, and 0.87, which was higher than 0.7. This meant that the construct reliability was at a high level, as Hair et al. (2010) determined that construct reliability of greater than 0.7 should be considered at a high level.

Furthermore, it was found that the average variance extracted of the latent variables of job embeddedness was at 0.99, and the average variance extracted of fit, links, and sacrifice was at 0.99, 0.98, and 0.98 respectively. These were higher than the criteria of Hair et al. (2010), who suggested that it should be 0.50 or more. This meant that the items of fit, links, and sacrifice could be indicators for each dimension, and all dimension could be indicators for the variables of the job embeddedness of employees.

When comparing the job embeddedness questionnaire developed in this research with the previous job embeddedness questionnaire of Mitchell et al. (2001) and Crossley et al. (2007), the job embeddedness questionnaire developed for this research had a medium number of items: only 29 items, while the questionnaire of Mitchell et al. (2001) and Crossley et al. (2007) had 42 items and 7 items respectively. The factor loading for the job embeddedness questionnaire developed in this research was between 0.38 and 0.85, and the factor loading for the job embeddedness questionnaires of Mitchell et al. (2001) was between 0.37 and 0.93 (sample group from grocery stores) and between 0.07 and 0.93 (from nurses and other hospital staff).

Regarding the job embeddedness questionnaires of Crossley et al. (2007), the factor loading was between 0.58 and 0.83 (87 employees) and between 0.42 and 0.90 (306 employees in caregiving organizations). It was discovered that the factor loading for the job embeddedness questionnaire developed in this research was around the same level as the factor loading of the questionnaires of Mitchell et al. (2001) and Crossley et al. (2007), except for the questionnaire of Mitchell et al. (2001) which was collected data from nurses and other hospital staff. Some sub-dimension had quite low level factor loading because they were only between 0.07 and 0.93.

The recommendations of the researcher on how to use the research findings are as follows: the job embeddedness of the employees questionnaire consisted of three dimensions, which were fit, links, and sacrifice. Twenty-nine items in total were developed, such as content validity, reliability, construct validity, and construct reliability. The questionnaire was considered good and was qualified as a tool to measure the job embeddedness of employees especially employees in the telecommunications industry. However, it would have been better if the questionnaire was evaluated for quality before being used.

When examining the factor loadings, factor loading for item number E8, "The facilities in your neighborhood fit you." was at 0.63, which was higher than the other items in the dimension fit. Therefore,



executives of the telecommunications industry should emphasize facilities such as beauty salons, dry cleaners, and convenience stores that employees can find in the community or build staff accommodations near these facilities. If employees perceive that the community fits them, they will become “embedded” in their jobs. Regarding links, for item number E11, “You have many close co-workers.” the factor loading was at 0.67, which was higher than the other items in the dimension. Therefore, close co-workers are more important than other people that an employee links to. Executives should encourage good relationships between employees. In terms of sacrifice, the factor loading for item number E23, “If you resign from your workplace, you will sacrifice your job advancement.” was at 0.85, which was higher than other items in the dimension. Job advancement is an essential element that prevents an employee from leaving the organization. To sum up, the facilities in the community, close co-workers, and job advances need to be emphasized if executives need employees to perceive themselves as fitting the community, linking to the organization, and realizing that they will sacrifice their job advancement after they quit work and move to another organization. Certainly, all three items need to be included in job embeddedness questionnaire due to their factor loadings.

The recommendations of the researcher regarding future research are as follows. For future research, the researcher can divide the dimensions of job embeddedness into fit, links, and sacrifice. Then fit can be divided into sub-dimensions, such as fit with the community and fit with the organization, links into links to the community and links to the organization, and sacrifice into organizational sacrifice and community sacrifice. Thereafter, the quality of the job embeddedness questionnaire of the employees can be analyzed using third-order confirmatory factor analysis in other words, the study items and their sub-dimensions, the sub-dimensions and their dimensions and the dimensions and the variable of job embeddedness so that the results can be more accurate. For instance, the factor loading, the coefficient of determination or  $R^2$ , the construct reliability, and the average variance extracted of each sub-dimension would be useful for understanding the details better and would encourage more proper job embeddedness. Researchers may also use job embeddedness questionnaire to measure employees and find a correlation between job embeddedness of employees and other variables such as intent to turnover, turnover, job performance, or job satisfaction. The research findings would be beneficial for the organization in terms of human resource management.

#### 4. CONCLUSION

In conclusion, by developing a job embeddedness measurement for employees, the researcher has made a good measurement and has considered the theories and concepts used to develop the dimensions and definitions and the aforementioned statistics. For instance, the measurement was examined using content validity, discrimination power was examined by using corrected item-total correlation, and reliability was examined by measuring internal consistency from Cronbach’s coefficient alpha. Concerning the second-order confirmatory factor analysis, the results showed that the job embeddedness measurement model was consistent with the empirical data, which meant that it had construct validity. The construct reliability of the overall job embeddedness of employees and dimensions fit, links, and sacrifice, was at 0.93, 0.82, 0.78, and 0.87 respectively. The average variance extracted for the overall job embeddedness of employees and dimensions fit, links, and sacrifice, was at 0.99, 0.99, 0.98, and 0.98 respectively, in accordance with the criteria. In addition, the job embeddedness measurement of employees was there were fewer items than 29 because they completely covered all of the dimensions and definitions, and it took only 15-20 minutes to answer the questionnaire. Therefore, it is suitable for measuring the job embeddedness of employees in the telecommunications industry or other similar characteristics of employees.

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