UNIVERSIDAD NACIONAL DE COLOMBIA
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# Structural equation model to predict the intention of stay to the local business group

Eileen Cruz-González [a] & José Alberto Vilalta-Alonso [b]

[a] Organismo Superior de Dirección Grupo Empresarial Artemisa, Artemisa, Cuba. sertac@gea.co.cu
[b] Universidad Tecnológica de La Habana José A. Echeverría, CUJAE, La Habana, Cuba. jvilalta@ind.cujae.edu.cu

Received: August 2nd, 2019. Received in revised form: March 17th, 2020. Accepted: April 6th, 2020

**Abstract**
With the objective of obtaining a predictive model of the intention of stay applicable to the companies subordinated to the local Business Group in the province of Artemisa, Cuba, the investigation consisted of the application of a questionnaire to 353 workers of 8 companies that were derelict in their corporate purpose. The results obtained support the hypotheses proposed since both the affective organizational commitment, the normative organizational commitment and the organizational commitment of continuity are significantly and positively related to the intention of permanence (r = 0.68, r = 0.55, r = 0.44, with p < 0.01), R2 = 0.552. The AMOS software is used to obtain the measurement model and the structural model as well as for the equations (CMIN/DF = 1.978, CFI = 0.972, SRMR = 0.043, RMSEA = 0.062, PClose = 0.084).

*Keywords:* intention to stay; organizational commitment; structural equations; AMOS.

# Modelo de ecuaciones estructurales para predecir la intención de permanencia en un grupo empresarial local

**Resumen**
Con el objetivo de obtener un modelo predictivo de la intención de permanencia aplicable a empresas subordinadas a un Grupo Empresarial local en la provincia de Artemisa, Cuba, la investigación consistió en la aplicación de un cuestionario a 353 trabajadores de 8 empresas disímiles en objeto social. Los resultados obtenidos apoyan las hipótesis planteadas, tanto el compromiso organizacional afectivo, el compromiso organizacional normativo y el compromiso organizacional de continuidad se relacionan significativa y positivamente con la intención de permanencia (r=0.68, r=0.55, r= 0.44, con p<0.01). Se utiliza el software AMOS para la obtención del modelo de medida y el modelo estructural, así como para las ecuaciones (CMIN/DF=1.978; CFI=0.972; SRMR = 0.043; RMSEA = 0.062; PClose= 0.084).

*Palabras clave*: intención de permanencia; compromiso organizacional; ecuaciones estructurales; AMOS

## 1. Introduction

Important resources such as technology or organizational structure may be imitable, but what really makes an organization different are the people who work in it. The quality, skills, worker expertise, their enthusiasm, satisfaction with their work and loyalty to the organization influence the results, efficiency, reputation and definitely successful survival of the organization. It is very important from the point of view of the business strategy to know what are the relationships established between individuals and the organization in which they carry out their work [1].

According to De Saá and García mentioned by Jijena (2012), those companies that know how to consider their employees as a valuable strategic resource, scarce, inimitable and irreplaceable, and that know how to use and integrate the different policies and practices of human resources in a system, that allow them to attract, identify, motivate, satisfy and retain these strategic workers will have a distinctive organizational capacity [2].

The study of the topic of work retention has important implications in the field of companies and organizations since

**How to cite:** Cruz-González, E. and Vilalta-Alonso, J.A, Structural Equation Model to predict the intention of stay to the local Business Group. DYNA, 87(213), pp. 159-164, April - June, 2020.

those employees with a high commitment to the organization tend to have a strong identification with it, to feel part of it, to agree with their goals and value systems, to stay and work hard [3].

When problems arise in the labor stability in an organization that affect the performance of the same, it is necessary to look for the fundamental causes that have given origin to an excessive turnover of the personnel. Generally, behind an excessive job rotation, motivation, displeasure and dissatisfaction at work are hidden and this in turn is influenced by a set of aspects linked in many cases to an insufficient management of Human Resources [4].

Unlike other behaviors that occur in the workplace, the voluntary rotation of personnel is manifested as a definitive break in the employment relationship between individuals and organizations. For this reason, it is fundamental to note that the separation incurs opportunity costs, recruiting costs, selection and training, as well as a low morale of the remaining employees. These costs are even more serious when the organization loses valuable employees [5].

The study of commitment in the workplace comes from the 60s and focused on the concept of organizational commitment. Research conducted by Lagomarsino in 2003, refer to the worker commitment and job satisfaction are crucial at the moment of making decisions. It is considered that if these workers develop high levels of satisfaction and commitment, the sense of permanence will be accentuated, links will be established with their organization, the entrepreneurial spirit will be promoted and action will be taken proactively improving their performance [6]. The sense of commitment of employees is an indicator of strategic relevance [7].

It should be expected then, that for some years the organizational commitment has become one of the key pieces for the management of human resources because it allows to analyze the identification of the employees with the organizational objectives, the link of the collaborators with their place of work and loyalty towards the organization, because if it is achieved that the collaborators are involved and very identified in the organization where they work, the possibilities of their permanence will be greater [8,9].

The three dimensions of organizational commitment are assumed by John P. Meyer and Natalie J. Allen (1991) [10]:

Affective Commitment: Refers to the feelings of belonging and attachment that the individual has towards their organization; it is the affection or fondness that the individual develops for his company.

Commitment to Continuation: This dimension is related to the costs or losses resulting from the separation of employment that occurs through resignation or dismissal.

Regulatory Commitment: It is the obligation that the employee feels to remain in the organization, is a commitment of reciprocity felt by the employee for having been subject to special considerations and treatment. This type of commitment can be increased with training, scholarships and the enjoyment of special favors, as well as through the communication of organizational expectations that generate feelings of obligation.

The Intention of Permanence construct is defined by Tett and Meyer as the will conceived and conscious to follow in the organization and has been identified as the most important and immediate precursor of the rotation [11].

The hypotheses that were stated were:

$H_1$: The Normative Commitment influences the Intention of permanence.

$H_2$: The Affective Commitment influences the Intention of permanence.

$H_3$: The Commitment of continuity influences the Intention of permanence.

The aim of the present work is to obtain a predictive model of the intention of permanence having as latent variables the three dimensions of the organizational commitment, using for it the structural equations.

## 2. Materials and methods

Empirical research methods based on scientific observation and analysis of documents, technical to assess the bibliography on the investigation problem was used. A questionnaire was applied to 353 workers from 8 companies with different corporate purposes belonging to the Territorial Business Group of the province of Artemisa, Cuba, to measure the three dimensions of the commitment, as well as the intention of permanence. IBM SPSS Statistic 21 software was used for Exploratory Data Analysis and Exploratory Factor Analysis (AFE) and IBM AMOS 24 for Factorial Confirmatory Analysis and modeling of equations. Theoretical methods were also used for the initial proposal of the model.

### *2.1. Measurement of variables and data collection instruments*

To measure the three dimensions of organizational commitment: Affective Commitment, Normative Commitment and Commitment to Continuity, the organizational commitment scale of Meyer and Allen (1997) [12], adapted and validated in the Spanish version in Mexico and Spain by Luis Arciniega and Luis González, is used (2006). Affective Commitment: reagents from 1 to 6, Commitment to Continuity; reagents from 7 to 12 and Normative Commitment, reagents from 13 to 18. To evaluate the Permanency Intention construct, the Questionnaire is used to evaluate the retention of labor (Musso and Salgado, 2012) [3], based on the Labor Retention Questionnaire de Kyndt et al. (2009) (3), reagents from 19 to 25. The fixed response format was of the Likert type: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree. In addition, they are used as control variables: age, cultural level, years working in the entity (Antiquity) and number of people who compose the nucleus (Family Nucleus).

## 3. Result and discussion

### *3.1. Exploratory data analysis*

Are selected for the application of the instruments 8

companies belonging to the same governing organization: Transport Company, Security and Protection Company, Community Company, Legal Services Company, Constructive Maintenance Company, Road Maintenance Company, Architect Company of the Community and the Business Group in question.

A non-probabilistic sampling of intentional type was used, because the access to the sample is in function of the facility that the companies grant for their respective evaluation. Senior management allowed the intervention at an agreed time.

Out of a total of 495 workers, 353 surveys (71.3%) were applied. Of these, 95 were eliminated, which represents 27% for the number of reagents that these individuals left unanswered (7 or more). A total of 258 surveys were processed, representing a 73% response rate and 52% of the total workforce of the companies to which access was obtained. Out of a total of 258 individuals, 59% were men. 6% of respondents are under 25 years old, 42% between 25 and 45 years old and 52% over 45 years old. 53% of respondents are university students, 39% with upper medium level and the rest (15%) with medium level. 63% have three years or less in their respective company. Of them, 55% are university students. Only 14% have been in the company for 7 years or more and of these only 4 individuals are university students. There are 7 individuals who have been working for more than 20 years and were graduated of the Upper Middle School Technician. 84% of those who have worked in the company for 5 years or less, live with 3 people or less, however, of the 38 individuals who live with 5 or more people, only 6 have worked for more than 12 years in the company.

As follows the variables and content of questions are introduced:

Permanencia_01: I see a future for myself within this company.

Permanencia_02: I am planning to work for another company within a period of three years.

Permanencia_03: I love working for this company.

Permanencia_04: If I wanted to do another job or function, I would first look for the possibilities within this company.

Permanencia_05: If I received an attractive job offer from another company, I would take it.

Permanencia_06: If it were up to me, I would definitely be working in this company for the next 5 years.

Permanencia_07: The work I do is very important to me.

CAfectivo_01: I would be very happy to spend the rest of my career in this organization.

CAfectivo_02: Actually, I feel as if the problems of this organization were mine.

CAfectivo_03: I do not have a strong sense of belonging with this organization.

CAfectivo_04: I do not feel emotionally attached to the organization.

CAfectivo_05: I do not feel like part of the family in this organization.

CAfectivo_06: This organization has great personal meaning for me.

CContinuidad_01: For now, staying in this organization reflects both need and desire.

CContinuidad_02: It would be very difficult for me to leave my organization now, even if I wanted to do it.

CContinuidad_03: Much of my life would be affected, if I decided to leave the organization where I work now.

CContinuidad_04: I feel that I have very few options if I consider leaving this organization.

CContinuidad_05: If I had not invested so much of myself in this organization, I could consider working elsewhere.

CContinuidad_06: One of the negative consequences of leaving this organization would be the scarcity of other available alternatives.

CNormativo_01: I do not feel any obligation to remain in my current job.

CNormativo_02: Even if I received benefits, I feel that leaving the organization now would not be the right thing to do.

CNormativo_03: I would feel guilty if I leave my organization now.

CNormativo_04: The organization where I work deserves my loyalty.

CNormativo_05: I would not leave my organization now because I have a sense of obligation to the people who work with me.

CNormativo_06: I feel that I owe a lot to this organization.

The variables Permanencia_01 and Permanencia_06 are eliminated and it is decided not to impute due to the high rate of non-response: 47% and 38% respectively, 79% of those that did not respond in Permanencia_01 did not do so in 06, there was no contradiction in answering : I would be very happy to spend the rest of my career in this organization (CAfectivo_01) it is taken into account that usually the methods for missing data provoke the appearance of biases, underestimation of the variances, overestimation of the correlations and subcoverage of the confidence intervals [13-15].

For variables with a high coefficient of variation, the estimates of the different methods turn out to be more disparate and the error rates higher [13]. There were no missing data in the control variables. They agreed to be planning to work for another company within a period of three years (Permanencia_02) 158 individuals, if you add those who did not agree but neither disagree (imagining the most unfavorable scenario) then the figure would amount to 238, meaning 92.2%, this value being consistent with the percentage of casualties detected in the monthly statistics of the companies. Of them, 82% said they loved working for that company (Permanencia_03) and in turn 97% would first seek the possibility within the entity in question (Permanencia_04). It would be possible for individuals feel reluctant to change so they would prove before resign continuing on the system that they already know.

Of the 13 individuals who live alone, all older than 45 years, only 7 (54%) answered affirmatively to be planning to work in another company within 3 years, however for family

nucleus formed by 3 people or more, the percentage increases to 93 %. 77% of all individuals consider that the organization in which they are working deserves their loyalty (CNormativo_05), 85 % of them however, are agree or strongly agree regarding to Permanencia_02 (I am planning to work for another company within a period of three years), establishing an obvious contradiction.

### *3.2. Exploratory factor analysis*

The data is processed and the variables that do not fulfill the criteria are eliminated (CAfectivo_03, CAfectivo_04, CAfectivo_05, CContinuidad_01, CContinuidad_03, CContinuidad_05 and CNormativo_01) Regarding the criterion to interpret the saturation of an item, recommendation is clear: never below of 0.40 [17]. The Kaiser-Meyer- Olkin test supports the sampling data for the analysis, KMO = 0.883. This adequacy measure indicates how large the correlation between the measured variables is. The result obtained shows that they are not casual. Kaiser considered a matrix with values for KMO below 0.50 inadequate for AF; mediocre if these values ranged between 0.60 and 0.69, enough if it is between 0.70 and 0.79 and satisfactory for values of 0.80 and up. Taken from [17].

It is necessary to emphasize the reliability of the data for which the Cronbach's Alpha statistic is analyzed. This statistic assumes a model of internal consistency of the data, which estimates the lower limit of the reliability coefficient based on the average of the correlations between the items [18], α (Affective Commitment, 3 items) = 0.872; α (Normative Commitment, 5 items) = 0.949; α (Commitment to continuity, 3 items) = 0.886, α (Intent to remain, 4 items) = 0.792.

Although Cronbach's Alpha weather were calculated, its acceptance and approval as an indicator of reliability, has generated many criticisms at a mathematical level, because the alpha coefficient uses the variances for reliability calculation, while the omega coefficient makes them with factorial loads [19]. Concerning this Juan Carlos Oyanedel explains: "... it is important to point out that although the omega coefficient is more robust and does not require that errors are not correlated, it has limitations. A very high reliability coefficient is counterproductive from the research point of view. It indicates redundancy and low construct validity -these are mostly multidimensional-. Focusing only on reliability and on more demanding estimators is unnecessarily limiting the ability to understand the complexity of the phenomena studied. It implies, in certain extent, looking at the tip of your finger when you are pointing to the moon " [20]. The total variance explained was 69.5%, although the use of the variance percentage criterion explained is explicitly discouraged, as it is confusing [17]. The Maximum Likelihood (ML) extraction method was used. The recommendation for the researcher is that he adapts the method to the type of data he wants to analyze: if the items are ordinal but have approximately normal distributions, then the appropriate method is ML [17]. The result of the Mardia test was 2,812. In any case, there is abundant literature based on simulation studies that show that the ML method is robust to the non-compliance of this assumption [20].

In the last two decades, studies reviewing the use of EFA have revealed an evolution from a majority use of orthogonal rotation (specifically the Varimax criterion), to using more and more oblique rotation [16]. The method of rotation used is Promax.

Configuration matrix that is obtained indicates 4 factors, which were the expected ones: Affective Commitment (AFECT), Commitment Continuity (CONT), Normative Commitment (NORM) and Intention of Permanence (PERM).

### *3.3. Diagnosis of goodness of fit*

The diagnostic stage of goodness of fit refers to the accuracy of the assumptions of the specified model to determine if the model is correct and serves as an approximation to the real phenomenon, thus specifying its predictive power. This was achieved with the IBM AMOS 24 software.

The path graphic was obtained (Path Diagram) using the Pattern Matrix Model plugin Builder, after the recommendations of modification of indexes and using the Plugin Model Fit Measure adequate results are obtained (Table 1).

To determine the Compound Reliability (CR) and the Average Variance Extracted (AVE), the Validity and Reliability Test Plugin is used. The results were adequate. The Composite Reliability criterion (greater than 0.7 for each construct), Convergent Validity (that AVE> 0.5) and Discriminant Validity (the results below the main diagonal are lower than the values in this diagonal) were fulfilled.

Another outlet that AMOS also offers is the $R^2$ (R Squared Multiple Correlations), in this case $R^2 = 0.552$. So, the variable **Permanence Intention** (PERM) is explained by 55.2% of the model, that is, by the variables **Affective Commitment** (AFECT), **Normative Commitment** (NORM) and **Commitment to Continuity** (CONT). Finally, the accepted hypotheses of the research are accepted.

**$H_1$:** The Normative Commitment influences the Intention of permanence ($p = 0.018$).

**$H_2$:** Affective Commitment influences the Intention of permanence ($p < 0.001$).

**$H_3$:** The Continuity Commitment influences the Intention of permanence ($p < 0.001$).

Table 1.
Model Fit Measures

| Measure | Estimate | Threshold | Interpretation |
|---|---|---|---|
| CMIN/DF | 1,978 | Between 1 and 3 | Excellent |
| CFI | 0,972 | >0.95 | Excellent |
| RMSEA | 0,062 | <0.06 | Acceptable |
| PClose | 0,084 | >0.05 | Excellent |

Source: The Authors.

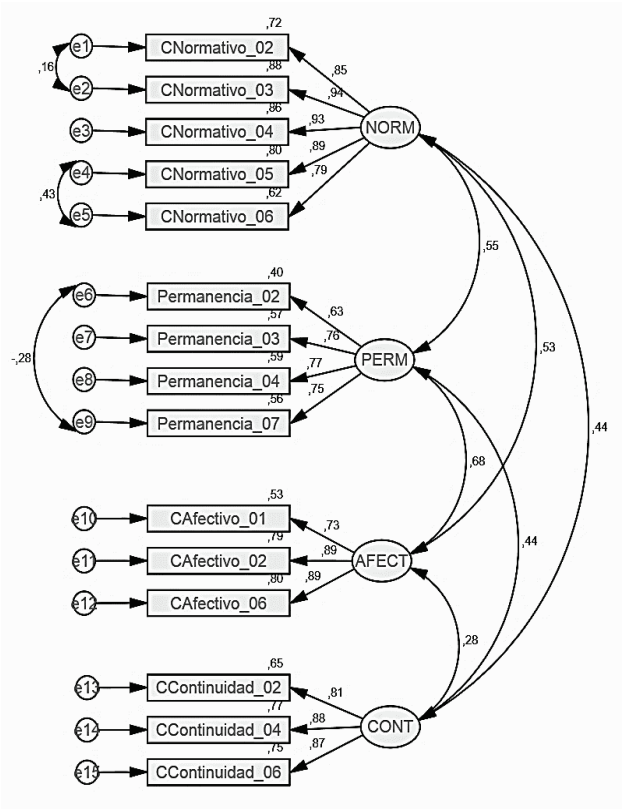


Figure 1. Measurement model.
Source: AMOS based in [21]

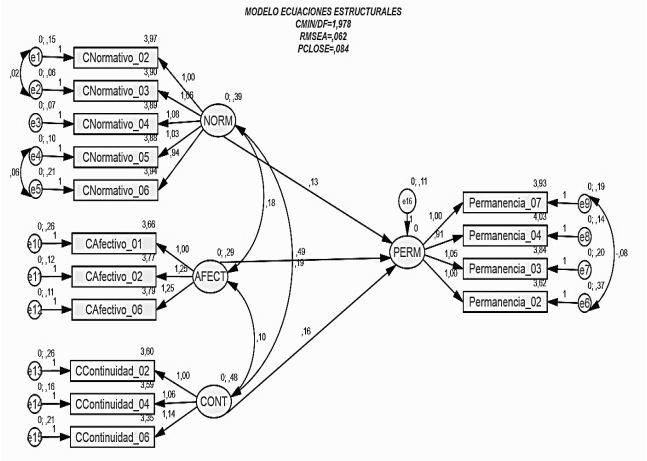


Figure 2. Structure model with unstandardized coefficients and covariances
Source: AMOS based in [21]

Fig. 1 shows the measurement model and Fig. 2 shows the structure model with the unstandardized coefficients. Note that the CMIN/DF, RMSEA and PCLOSE indicators are still acceptable.

**Measurement equations:**

$$\text{CNomativo\_02} = \text{NORM} + 0.153 \qquad R^2 = 0.716 \qquad (1)$$

$$\text{CNomativo\_03} = 1.06 \cdot \text{NORM} + 0.153 \qquad R^2 = 0.877 \qquad (2)$$

$$\text{CNomativo\_04} = 1.082 \cdot \text{NORM} + 0.072 \qquad R^2 = 0.862 \qquad (3)$$

$$\text{CNomativo\_05} = 1.032 \cdot \text{NORM} + 0.104 \qquad R^2 = 0.798 \qquad (4)$$

$$\text{CNormativo\_06} = 0.936 \cdot \text{NORM} + 0.104 \qquad R^2 = 0.617 \qquad (5)$$

$$\text{CAfectivo\_01} = \text{AFECT} + 0.260 \qquad R^2 = 0.528 \qquad (6)$$

$$\text{CAfectivo\_02} = 1.254 \cdot \text{AFECT} + 0.123 \qquad R^2 = 0.788 \qquad (7)$$

$$\text{CAfectivo\_06} = 1.254 \cdot \text{AFECT} + 0.114 \qquad R^2 = 0.800 \qquad (8)$$

$$\text{CContinidad\_02} = \text{CONT} + 0.261 \qquad R^2 = 0.649 \qquad (9)$$

$$\text{CContinidad\_04} = 1.063 \cdot \text{CONT} + 0.161 \qquad R^2 = 0.773 \qquad (10)$$

$$\text{CContinidad\_06} = 1.143 \cdot \text{CONT} + 0.209 \qquad R^2 = 0.751 \qquad (11)$$

$$\text{Permanencia\_02} = \text{PERM} + 0.375 \qquad R^2 = 0.399 \qquad (12)$$

$$\text{Permanencia\_03} = 1.046 \cdot \text{PERM} + 0.202 \qquad R^2 = 0.399 \qquad (13)$$

$$\text{Permanencia\_04} = 0.913 \cdot \text{PERM} + 0.144 \qquad R^2 = 0.591 \qquad (14)$$

$$\text{Permanencia\_07} = 0.996 \cdot \text{PERM} + 0.194 \qquad R^2 = 0.560 \qquad (15)$$

**Structure equation:**

$$\text{PERM} = 0.491 \cdot \text{AFECT} + 0.161 \cdot \text{CONT} + 0.135 \cdot \text{NORM} \qquad (16)$$
$$R^2 = 0.552$$

## 4. Conclusions

Human capital is a critical factor for organizations to achieve their objectives and it is for this reason that it is necessary for organizations to implement strategies and actions aimed at monitoring, preserving and increasing this capital. Determining the potential rotation, as well as the causes that encourage voluntary abandonment and influence them, will be a mandatory strategy for companies that wish to retain talented personnel. The hypotheses proposed for the research were accepted, the affective commitment, the commitment of continuity and the normative commitment influence the intention of permanence. The structural model is able to explain up to 55.2% of the variance of the intention to permanence construct, which corroborates the findings of multiple authors who present the organizational commitment as one of the determinants of the intention of permanence.

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**E. Cruz-González,** is BSc. in Industrial Engineer, Sp. in Business Organization in 2002, and MSc. in Industrial Engineer fron the Universidad Tecnológica de la Habana/ CUJAE, Habana, Cuba. Senior Specialist of quality of the Superior Management Organization Grupo Empresarial Territorial Artemisa. Assisting teacher in the Universidad de Artemisa.
ORCID: 0000-0003-0934-0784

**J.A. Vilalta-Alonso**, is BSc. in Industrial Engineer. He holds a PhD in Technical Sciences from the Universidad Tecnológica de la Habana/ CUJAE, Habana, Cuba, in 2008. Professor of the Department of Industrial Engineering in Universidad Tecnológica de la Habana/ CUJAE. He is president of the National Industrial Engineering Career Commission of the Cuba.
ORCID: 0000-0001-7505-8918