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Sample

# Validity Evidence for the Turnover and Attachment Motives Survey (TAMS) in a Brazilian Sample[1]

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**Abstract:** Staff turnover has become a growing concern of organizational research, yelding many predictive models worldwide. One promising model is the Turnover and Attachment Motives Survey (TAMS). This study aimed to adapt and validate the TAMS to the Brazilian organizational context, and ensure that the universality claim of the theory remains true. Participants were 523 Brazilian professionals occupying a range of positions in diverse companies. Their ages ranged between 24 and 54 years ($M = 34.2$, $SD = 7.17$), and they were predominantly men (57.7%). Results provided evidence of internal consistency, convergent, divergent, and predictive validity, advocating on behalf of TAMS as a tool for more adequately understanding and managing turnover intention and its antecedents among employees. Despite being a promising measure, we suggest the necessity for further investigation and improvement, in future studies, of some of TAMS' subscales, such as normative and constituent forces.

**Keywords:** employee turnover, motivation, personnel

## Evidências de Validade do Inventário de Motivos Para Turnover e Retenção (TAMS) em uma Amostra Brasileira

**Resumo:** O turnover de profissionais tornou-se preocupação crescente de pesquisas organizacionais, gerando muitos modelos preditivos no mundo todo. Um modelo promissor é o Inventário de Motivos para Retenção e Turnover (TAMS). Este estudo buscou adaptar e validar o TAMS para o contexto organizacional brasileiro, e verificar se a afirmação sobre a universalidade desse modelo se mantém. Foram participantes 523 profissionais brasileiros, predominantemente homens (57,7%), de diferentes níveis hierárquicos e empresas, com idades entre 24 e 54 anos ($M = 34,2$, $DP = 7,17$). Os resultados forneceram evidências de consistência interna e validade convergente, divergente, e preditiva, apontando a TAMS como ferramenta que permite compreender e gerir mais adequadamente a intenção de rotatividade e seus antecedentes. Apesar de ser uma medida promissora, os resultados apontam a necessidade de, em estudos futuros, investigar e adequar algumas das subescalas da TAMS, especialmente forças normativas e constituintes, para que sejam mais representativas do contexto brasileiro.

**Palavras-chave:** rotatividade de pessoal, motivação, recursos humanos

## Pruebas de Validez del Inventario de Motivos Para Rotación y Retención (TAMS) en una Muestra Brasileña

**Resumen:** El turnover de profesionales se ha convertido en preocupación creciente de investigaciones organizacionales, generando muchos modelos predictivos por el mundo. Un modelo prometedor es el Inventario de Motivos para Retención y Turnover (TAMS). Este estudio buscó adaptar y validar el TAMS para el contexto organizacional brasileño, y verificar si la afirmación acerca de la universalidad de este modelo sigue siendo verdadera. Participaron 523 profesionales brasileños, predominantemente hombres (57,7%) en diferentes posiciones y empresas, con edades entre 24 y 54 años ($M = 34,2$, $DE = 7,17$). Los resultados evidencian la consistencia interna, validez convergente, divergente y predictiva, señalando el TAMS como inventario capaz de comprender y gestionar mejor la intención de rotatividad y sus antecedentes. A pesar de una medida prometedora, nuestros resultados muestran la necesidad de, en estudios futuros, investigar y mejorar algunas de las subescalas de TAMS, especialmente fuerzas normativas y constituyentes, para que sean más representativas de la realidad brasileña.

**Palabras clave:** rotatividad de personal, motivación, personal

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Attracting and retaining qualified employees has always been a significant concern for organizations. With new managerial approaches, technological progress, and labor market dynamism, employee turnover has become crucial for organizational competitiveness. Turnover refers to the transitional displacement of employees, either by decision of the company (involuntary exit), or by decision of the employee (voluntary exit; Griffeth & Hom, 2001).

Despite the positive effects, such as a more active role towards a constant and mutual improvement by both professionals and organizations, the balance between layoffs and admissions tends to be negative for individuals, teams and society. More specifically, individuals may lose seniority and close personal relationships, as well as face the need to assume the costs of a health plan or pension.

The teams, in turn, need to adapt to new contexts and labor relations, all the while meeting the expectations and delivering fast and efficient results. Costs to society are even greater. For example, employee turnover costs for the Brazilian government – in particular the payment of unemployment insurance and benefits – have reached R$ 47 billion (approximately US$ 11,3 billion), an amount corresponding to 1% of the country's Gross Domestic Product in 2013 (Rizzotto, 2013).

As for organizations, the financial costs to recruit, hire, and train a single worker can range from 93% to 200% of the annual salary for the position (Griffeth & Hom, 2001). The intangible costs of voluntary employee turnover are also of concern: high turnover rates can lead to a loss of organizational memory and to an insufficient number of experienced mentors available for new members of the organization (Griffeth & Hom, 2001).

Additionally, evidence shows that the costs and losses of human and social capital associated with voluntary turnover tend to be larger than the positive effects of personal replacement. This understanding holds true even if replacements end up bringing professionals with new ideas and abilities, earning lower salaries (Hancock, Allen, Bosco, McDaniel, & Pierce, 2013). Voluntary turnover can even cause a general loss of efficiency and continuity, as well as expose commercial secrets and strategies (Griffeth & Hom, 2001; Hancock et al., 2013). In sum, voluntary turnover is detrimental to an organization for two main reasons: it usually takes the organization by surprise, and may incur costs for both employees and employers (Hancock et al., 2013). However, despite the impact of this phenomenon in the Brazilian context, academic literature on the subject is quite scarce, and models and instruments destined to assess turnover intentions and behaviors among Brazilian professionals are absent.

For these reasons, researchers on the field (Holtom, Mitchell, Lee, & Eberly, 2008) have already brought about many empirical and theoretical studies, attempting to understand and proposing models capable of predicting such behaviors. Earlier models for explaining turnover (Holtom et al., 2008) were formulated with the most basic components concerning human resources: individual differences, job nature, attitudes towards work, organizational context, person-context interface, and personal assessments about staying or leaving. Models proposed after 1985 basically followed the same assumptions, but considerably increased the number of factors and aspects contemplated. For example, the first models were interested only in employees' motivations for leaving the company. In contrast, new models are also concerned with reasons that lead employees to stay. Such advances are providing both a better understanding and a more accurate description of the problem, allowing for the proposition of unified theoretical models and feasible empirical verification. Current models in turnover can be classified according to their focus. They can be distinguished by: (a) being interested in a general apprehension of a problem in its various circumstances and contexts, (b) being concentrated in specific and very well defined situations, or (c) looking at specific and unique turnover paths of various sub-populations (Holtom et al., 2008; Steel & Lounsbury, 2009).

The first group of models – or universal models – tend to provide an encompassing framework supposedly applicable to individual decisions, independently of their peculiar context (Steel & Lounsbury, 2009). These models assume that at least some of their components could apply to different contexts, even while recognizing their multiplicity. One important model in this group was proposed by Maertz and Griffeth (2004). The authors suggested that there was "no overarching framework available for researchers and practitioners hoping to comprehensively grasp the motivations for staying and leaving an organization" (Maertz & Griffeth, 2004, p. 667) and developed a universal theory-driven model for a comprehensive understanding of turnover and attachment motives. The starting point and theoretical foundation of their work was the traditionally accredited concept of motivation, defined asthe main determinant for the amount of effort allocated in the initiation and persistence of any behavior.

The Model of Turnover and Attachment Motives (Maertz & Griffeth, 2004) consists of eight organizational motives or forces identified as: (1) Affective Forces - sentiments of comfort or discomfort, which can lead to attachment or withdrawal; (2) Contractual Forces - the recognition of reciprocal obligations, which can imply or explicitly include staying in the job; (3) Calculative Forces - the perceptions of one's chances for achieving personal goals and fulfilling one's values in that organization; (4) Alternative Forces - the awareness of auspicious opportunities in the labor market, which can lead to seeking other workplaces; (5) Behavioral Forces - perceptions of tangible or functional cost incurred by leaving or staying in the organization; (6) Normative Forces - perceptions of family or friends expectations about one's remaining or quitting the organization; (7) Moral Forces - values and beliefs favorable or contrary to leaving or staying in the organization; (8) Constituent Forces - feelings of attachment or detachment resulting from interpersonal contingencies with leaders, friends, and coworkers. These forces may have greater or lesser impact on turnover depending on where they originate, that is, whether they come from the organization, the context, or the individual (Maertz & Boyar, 2012; Maertz & Griffeth, 2004). Thus, because of their source, the Affective, Calculative, Contractual, Constituent, and Behavioral Forces are high affect-loaded at an organizational level; the Alternative and Normative Forces are high affect-loaded at a contextual level; and the Moral Forces are high affect-loaded at an individual level. However, the most critical forces in the development of turnover intent and behavior are those high affect-loaded at an organizational level.

The motivational forces described above cover a large set of organizational aspects, including Implications for

individuals at work, and the support – or lack of support – of society and family. Each force has its own specificity, yet they interrelate in three ways: (1) they may change simultaneously, due to objective or subjective events, which suggests their correlation; (2) they may exacerbate or mitigate the effects of each other, implying real interaction; and (3) they may also cancel each other (Maertz & Griffeth, 2004).

The theoretical model proposed by Maertz and Griffeth (2004) was welcomed in the literature as a starting point for conducting research aimed at the development of a comprehensive strategy to assess the reasons for turnover and attachment (Harris, Kacmar, & Witt, 2005; Holtom et al., 2008). These earliest efforts resulted in the development of an instrument for empirical testing of the eight motivational forces associated to turnover and attachment. The instrument proposed by Maertz and Boyar (2012) was named Turnover and Attachment Motives Survey (TAMS). This instrument aimed to be, at the same time, comprehensive and parsimonious, including eight forces (Maertz & Griffeth, 2004), which constituted individual measures. In the original study, the TAMS was applied to three samples and obtained similar results in each of them – an extremely good result – showing adequate psychometric properties. The results obtained were promising in allowing researchers to observe how the forces interact and conflict with each other predicting turnover intentions and behaviors over time, and thus being of great interest to both organizations and researchers (Maertz & Boyar, 2012).

The aim of our study was to examine the psychometric properties and validity of the Brazilian version of the TAMS, and ensure that the universality claims of the theory remain true in the Brazilian organizational context. The rationale for this study lies in three critical aspects: (1) TAMS remains the most comprehensive universal model-based turnover and attachment antecedents survey (Maertz & Boyar, 2012), (2) the opportunity to verify psychometric properties in a different culture can always be yet another test of its universality, and (3) there is a scarcity of Brazilian studies on voluntary employee turnover and retention, as well as of models to predict these phenomena.

The study has four central hypotheses regarding TAMS' structure: (1) The eight factors structure of the original scale will persist when applied to a Brazilian sample; (2) the forces will correlate with each other; (3) the strongest correlations will prevail between forces belonging to the same group, be it organizational, contextual or individual; and (4) the scale will be appropriate and useful for predicting the turnover intention of workers irrespective of educational levels and with a non-American sample.

One of the strengths of the present study is replacing one of TAMS' scales, the Alternative Forces measure, for a more complex and powerful one – the Employment Opportunity Index (EOI) (Griffeth, Steel, Allen, & Bryan, 2005) – following recommendations by Maertz and Boyar (2012). Researchers have successfully used the EOI in different varied contexts and with diverse populations in order to analyze career attitudes and behaviors (Morse, Weinhardt, Griffeth, & Oliveira, 2014). The strength of the EOI, when compared to other measures

of perceived alternatives, is its ability to use distinct factors to better assess such a multidimensional theoretical construct (Griffeth et al., 2005). Particularly, it allows assessing not only perceptions on number and quality of job alternatives, but also the effectiveness of networking, the actual job offers or alternatives professionals have encountered, as well as their intention to move for job-related reasons.

## Method

### Participants

Participants were 523 Brazilian professionals working in different industries (43.5 % manufacturing, 16.1% trading, 8% education, and the remaining 32.4% in other areas such as health, services, mining and oil). The ages in the sample varied between 24 and 54 years ($M = 34.2$, $SD = 7.17$). Most of the participants were men (57.7%), married (64.6%) and had no children (58.1%). All of them had complete high school or technical school education. In addition, 37.3% had a bachelor degree, and 47.6% had a higher degree (e.g. Master, Doctor). All participants worked for at least one year with their current employer.

### Instruments

The survey included basic questions to obtain demographic information, and three measures: Turnover-Attachment Motives Survey (TAMS; Maertz & Boyar, 2012); Employment Opportunity Index – EOI (Griffeth et al., 2005); and a turnover intention scale (Siqueira, Gomide Júnior, Oliveira, & Polizzi Filho, 2014). What follows is a description of the instruments.

*Turnover-Attachment Motive Survey (TAMS).* Originally consists of 80 items, divided in 18 subscales that evaluate eight motivational forces. Respondents have to indicate how strongly they agree with each item according to a five-point intensity scale (1 = *strongly disagree* to 5 = *strongly agree*). Seven of the original scales were used in the study and are hereafter described.

Affective forces: with five items, assesses how positive or negative is the overall feeling about the organization and about being part of it. The alpha Coefficient of the original scale is $\alpha = .94$ and a sample item is: "I feel good about working at 'the company name'".

Contractual forces: assesses two dimensions related to the sense of obligation that results from compliance or noncompliance to the psychological contract presented by the organization. The alpha coefficient of the original subscale Obligation is $\alpha = .89$ (Sample item: "I owe 'the company name' my loyalty for what it has given to me") and of the subscale Violation is $\alpha = .87$ (Sample item: "'The company name' has broken promises to me about assignments").

Calculative forces: assesses the calculation of the future chances for achieving career/life goals and fulfilling values at the current organization. The alpha coefficient of the original scale is $\alpha = .95$ and a sample item is: "At 'the company name' I can achieve my career goals".

Behavioral forces: assesses the perceived costs related to leaving a particular organization. The alpha original coefficients of the subscales were, respectively: Tangible Costs $\alpha$ = .79 (Sample item: "It would be costly for me to leave 'the company name' now"), Inertia Costs $\alpha$ = .84 (Sample item: "Leaving 'the company name' would take too much energy"), and Psychological Costs $\alpha$ = .88 (Sample item: "I freely chose 'the company name' instead of other organizations").

Normative forces: assesses expectations from family or friends about remaining in or quitting the current job. The alpha coefficient of the original Family subscale is $\alpha$ = .81 (Sample items: "My family wants me to find a different job where I could spend more time at home"), and of the Friends subscale is $\alpha$ = .86 (Sample item: "A friend at another organization wants me to go work with him/her").

Moral forces: assesses an attitude favorable either to holding a single job or to changing jobs regularly. The alpha coefficient of the original Attachment subscale is $\alpha$ = .80, (Sample item: "I believe that it is bad when people move from job to job") and of the Withdrawal subscale is $\alpha$ = .74 (Sample item: "Staying at one organization hurts a person's career").

Constituent forces: assesses the attachment to constituents, and foci of commitment. Three subscales refer to the relationship with a supervisor. The alpha coefficients of the original subscales were, respectively: Affective subscale $\alpha$ = .92 (Sample item: "I like my supervisor a lot"), Continuance subscale $\alpha$ = .92 (Sample item: "I would lose a valuable relationship with my supervisor by quitting"), and Normative subscale $\alpha$ = .89 (Sample item: "I feel obligated to stay with my supervisor at 'the company name'".). Three other subscales refer to the relationship with coworkers. Their original alpha coefficients were respectively: Affective subscale $\alpha$ = .90 (Sample item: "I feel obligated to keep working with my coworkers at 'the company name'"), Continuance subscale $\alpha$ = .75 (Sample item: "I feel I would lose valuable relationships with the people at work by quitting"), and Normative subscale $\alpha$ = .90 (Sample item: "I feel obligated to keep working with my coworkers at 'the company name'").

*Employment Opportunity Index (EOI).* Developed by Griffeth et al. (2005), this 14-item scale (original $\alpha$ = .85) measures the perceptions individuals hold about the job market and their job market mobility, using five dimensions. The EOI was tested for measurement invariance by Morse et al. (2014) in a multicultural study which included a sample from Brazil and was considered suitable for use in such culture (presenting $\alpha$ = .86). Respondents have to indicate how strongly they agree with each item according to a five-point intensity related scale (1 = *strongly disagree* to 5 = *strongly agree*). Ease of movement assesses perception over the quantity of job alternatives available (Sample item: "Given my qualifications and experience, getting a new job would not be very hard at all"; original $\alpha$ = .70 to .76). The desirability of movement refers to the individual's evaluation of how good job opportunities available seem (Sample item: "If I looked for a job, I would probably wind up with a better job than the one I have now"; original $\alpha$ = .84 to .85). Networking refers to the perception an individual holds about the quality of his or her network (Sample item: "I have contacts in other companies who might help me line up a new job"; original $\alpha$ = .75 to .76). Crystallization of alternatives refers to concrete job offers made to the professional or job alternatives perceived by him/her (Sample item: "I have found a better alternative than my present job"; original $\alpha$ = .77 to .82). Finally, Mobility refers to how able to change jobs the professional is (Sample item: "My spouse's career makes it very difficult for me to leave – R"; original $\alpha$ = .66 to .73).

*Turnover Intention Scale.* This scale, validated by Siqueira et al. (2014) is composed of three items which aim to assess different facets of turnover intent: (a) "I think about leaving the company where I currently work"; (b) "I plan to leave the company where I currently work"; (c) "I wish to leave the company where I currently work". Respondents had to indicate how strongly they agreed with each item according to a five-point intensity related scale (1 = *strongly disagree* to 5 = *strongly agree*). The alpha coefficient is .89.

**Procedure**

**Data collection.** Translation and cultural adaptation of the TAMS followed the steps proposed by Borsa, Damásio, and Bandeira (2012). Participants were recruited online on social networking websites, such as LinkedIn, and from a mailing list of volunteers who had participated in previous studies conducted by the same research group. They received e-mails including a brief description of the research, as well as the requirements to participate, and were invited to answer an internet survey online. Those who granted informed consent were allowed to proceed to the survey.

**Data analysis.** Demographic data were subjected to descriptive and frequency analyzes. Data generated from the scales were submitted to exploratory factor analyses, correlation analyses and linear regression. All analyses were conducted using the statistical package software SPSS version 20.

According to Osborne and Fitzpatrick (2012), once exploratory factor analysis provides a test of replication stricter than confirmatory analysis, the former technique is preferable to the latter. Given this statement and the fact that the TAMS had not previously been applied to non-American professionals, we chose to analyze our data with exploratory factor analyzes. We believed this would allow us to observe how individuals from another culture would respond to the instrument, as well as to seek other evidence for the way of operation and effectiveness of the scale.

Firstly, we ran exploratory factor analyzes (EFA) including every item on all of TAMS' subscales using Oblimin rotation (once the correlation among the factors reached the expected values), and without setting a

predetermined number of factors to extracted. We analyzed the scree plot in order to determine if the number of factors was consistent with the criterion of eigenvalues greater than 1. Additionally, we analyzed the Kaiser-Meyer-Olkin index of sampling adequacy and the Bartlett sphericity test. We also analyzed the internal consistency of each of the TAMS' subscales. Table 1 shows a summary of the EFA's results.

Secondly, we attempted to demonstrate evidence for the convergent and discriminant validity of the subscales. Similarly to Maertz and Boyar (2012), we believe that this was an essential step in validating the TAMS, even though several studies had previously established discriminant validity among scales with measuring constructs similar to those evaluated by our survey, and despite the theoretical construct of forces were being shown to be conceptually distinct by Maertz and Griffeth (2004). Therefore, we ran correlation analyzes between all subscales of the TAMS, all subscales of the EOI, and turnover intentions. Results of the correlations among variables are shown in Table 2.

Thirdly, we tested which of the motivational forces would better contribute to an explanation for the variance in the intention to voluntarily leave employment. The target variable in our linear regression model was Turnover Intention. The explanatory variables were hourly salary, age, and every subscale of the TAMS and of the EOI – all of which were correlated with turnover intentions. Results of the regression analysis, Enter method, are reported in Table 3.

## Ethical Considerations

This research project was approved by the Research Ethics Committee at the Universidade Federal do Rio Grande do Sul, under the protocol n. 21665, on October 10th, 2011.

## Results

Descriptive analyzes indicate that participants worked an average of 45.6 hours per week ($SD$ = 9.7) and their average monthly salary was R$ 5634.20 ($SD$ = R$ 3865.45). The participants reported an average of three salary increases ($SD$ = 1.55) over the past three years (it is important to note that Brazilian Working Law determines at least one raise per year). In the same period, 41.7% of the participants did not receive any promotion, 38% received a single promotion and 20.3% received two or more promotions. Most participants (65.2%) informed that they were offered jobs in the past 12 months, 22.2% by headhunters, 14.1% by previous coworkers, and 14% by LinkedIn. A great number of participants (77.6%) reported up to five jobs before their current job, and 89.9% of them voluntarily left at least three of their previous jobs for better opportunities. Also, 61% of them affirmed that their current job is hierarchically superior to their previous job.

## Dimensionality and Internal Consistency

Table 1 shows a summary of the results for the factor analysis. Reported in the table are the KMO values, the names of the 15 factors observed to have eigenvalues equal or above 1, the "variance explained by", and the number of items in each factor, its mean and standard deviation. All but four of TAMS' subscales behaved as theory predicted. In both the Constituent-coworkers and the Supervisor scales, items belonging to the subscales Affect and Continuance failed to load in the appropriate dimensions, as showed in Table 1. This resulted in the blend of two factors (Affect + Continuance and Normative) for both coworkers and supervisors, partially confirming Hypothesis 1.

Table 1

*Results of Factor Analysis Performed With the TAMS's Subscales*

| Scale | KMO | Dimensions Observed | items | α | M | SD | % Variance explained |
|---|---|---|---|---|---|---|---|
| Calculative | .89 | Calculative | 6 | .90 | 3.32 | 1.06 | 68.2 |
| Moral | .69 | Withdrawal | 5 | .72 | 2.90 | 0.76 | 30.5 |
| | | Attachment | 4 | .63 | 2.97 | 0.78 | 18.2 |
| | | Inertia | 5 | .76 | 3.00 | 0.92 | 26.2 |
| Behavioral | .84 | Psychological | 5 | .64 | 3.63 | 0.76 | 12.5 |
| | | Tangible | 5 | .66 | 2.31 | 0.79 | 9.06 |
| Normative | .80 | Family | 5 | .81 | 2.56 | 1.01 | 41.4 |
| | | Friends | 5 | .80 | 2.37 | 0.98 | 16.7 |
| Constituent Coworkers | .79 | Coworker-Affect+Continuance | 4+3 | .74 | 3.54 | 0.64 | 30.9 |
| | | Coworker-Normative | 4 | .71 | 2.27 | 0.77 | 20.6 |
| Constituent Supervisor | .87 | Supervisor-Affect+Continuance | 4+3 | .91 | 3.25 | 0.97 | 44.2 |
| | | Supervisor-Normative | 4 | .66 | 2.53 | 0.82 | 16.3 |
| Affective | .83 | Affective | 5 | .89 | 3.85 | 0.91 | 69.7 |
| Contractual | .79 | Violation | 3 | .89 | 2.45 | 1.17 | 51.3 |
| | | Obligation | 4 | .79 | 3.00 | 0.93 | 21.1 |

*Note.* N = 523 for all variables. The subscales Constituent-affect and Constituent-Continuance of both supervisors and coworkers failed to load in different factors, as it was expected theoretically. The table reports only information regarding the merging of these subscales.

Table 2
*Convergent, and Discriminant Validity of TAMS' and EOI's Subscales*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Calc. | 1 | | | | | | | | | | | | | | | | | | | |
| 2. Oblig. | .56** | 1 | | | | | | | | | | | | | | | | | | |
| 3. Viol. | -.28** | -.42** | 1 | | | | | | | | | | | | | | | | | |
| 4. Aff. | .64** | .64** | -.33** | 1 | | | | | | | | | | | | | | | | |
| 5. Psych. | .51** | .48** | -.20** | .59** | 1 | | | | | | | | | | | | | | | |
| 6. Ease | .24** | .11* | -.08 | .19** | .18** | 1 | | | | | | | | | | | | | | |
| 7. Net. | .16** | .10* | -.05 | .19** | .19** | .51** | 1 | | | | | | | | | | | | | |
| 8. Mobi. | .07 | .001 | -.08 | .03 | -.04 | .15** | .10* | 1 | | | | | | | | | | | | |
| 9. Desire | -.05 | -.18** | .22** | -.04 | -.03 | .35** | .46** | .09* | 1 | | | | | | | | | | | |
| 10. Cryst. | -.05 | -.11* | .18** | -.10* | -.09* | .16** | .30** | -.08 | .40** | 1 | | | | | | | | | | |
| 11. Inert. | .20** | .31** | -.08 | .24** | .34** | -.04 | -.14** | -.26** | -.21** | -.21** | 1 | | | | | | | | | |
| 12. Tang. | .18** | .20** | -.01 | .14** | .21** | -.05 | -.12** | -.17** | -.12** | -.13** | .44** | 1 | | | | | | | | |
| 13. Attac. | .20** | .31** | -.07 | .30** | .38** | -.03 | .04 | -.08 | -.06 | -.03 | .19** | .25** | 1 | | | | | | | |
| 14. With. | -.21** | -.27** | .16** | -.29** | -.25** | .001 | .04 | .04 | .16** | .10* | -.08 | -.03 | -.27** | 1 | | | | | | |
| 15. Fami. | -.17** | -.19** | .14** | -.20** | -.11** | -.04 | .02 | -.09* | .14** | .17** | -.20** | .02 | -.07 | .24** | 1 | | | | | |
| 16. Frien. | -.39** | -.33** | .34** | -.39** | -.23** | .001 | .11* | -.06 | .30** | .33** | -.18** | -.03 | -.09* | .18** | .45** | 1 | | | | |
| 17. CWAff. | .25** | .25** | -.09* | .37** | .34** | .18** | .27** | .03 | .20** | .11* | .13** | .11* | .20** | -.08 | -.06 | -.07 | 1 | | | |
| 18. CW-Norm. | .08 | .19** | .001 | .13** | .16** | -.06 | .02 | -.07 | .03 | .11* | .18** | .19** | .21** | .03 | .08 | .06 | .34** | 1 | | |
| 19. Sup.Aff. | .37** | .38** | -.23** | .43** | .29** | .05 | .10* | .01 | -.11* | -.01 | .16** | .15** | .17** | -.15** | -.11* | -.24** | .27** | .15** | 1 | |
| 20. Sup. Norm. | .09* | .21** | .01 | .17** | .17** | .03 | .06 | -.06 | .02 | .11* | .21** | .17** | .17** | .04 | .06 | .10* | .20** | .55** | .33** | 1 |

*Note.* $N = 523$ for all variables. The variables included in the analysis were: Calculative (Calc.), Contract-Obligation (Obligat.) and Violation (Viol.), Affective (Aff.), Behavioral-Psychological (Psych.), Ease of Movement (Ease), Networking (Net.), Mobility (Mobi.), Desirability of Movement (Desire), Crystallization of Alternatives (Cryst.), Behavioral Inertia (Inert.) and Tangible (Tang.), Normative-Family (Fami.) and Friends (Frien.), Moral-Attachment (Attac.) and Withdrawal (With.), Constituent-Coworker-Affect and Continuance (CWAff.) and Normative (CWNorm.); Constituent-Supervisor-Affect and Continuance (Sup.Aff.) and Normative (Sup.Norm.). The rectangles illustrate the correlations described by the Hypotheses 2 through 5.

*p < .05. **p < .01.

According to Comrey and Lee (1992), factor loadings are the evidence of overlap between variable and factor. The authors propose that when the factor loading is about $\lambda = .32$ there is a 10% overlapping variance, which is considered poor; when the factor loadings are about $\lambda = .45$ there is a 20% overlapping variance, which can be considered fair; and when the factor loading is about $\lambda = .63$, there is a 40% overlapping variance, which is considered very good. Table 1 shows the results for internal consistency. They indicate that internal consistency indices of 11, among the 15 scales, were above $\alpha = .70$. The other indices were equal or above $\alpha = .63$.

**Convergent and Discriminant Validity**

Correlation analyzes between all scales and subscales showed that most of the strongest correlations between high affect-loaded organizational forces (Affective, Calculative, Contractual, Constituent, and Behavioral Forces) happen amongst these forces themselves. The same pattern was observed in the correlations between high affect-loaded contextual-level forces (Normative and Alternative Forcers), and among high affect-loaded individual-level forces (Moral Forces). Furthermore, in most cases (except for Moral-Attachment and Moral-Withdrawal), not only the within-grouping correlations were above average in magnitude; in addition to that, the largest magnitude correlation within each of the groupings was larger than any subscales' highest correlation with variables outside the respective grouping, confirming Hypotheses 2 and 3.

**Predictive Validity**

Table 2 presents the predictive model for Turnover intention. The variables which compose the TAMS were included in the model in order to measure their contribution to the explanation for the variation of turnover intention. The association between the criterion variable and the explanatory variables is moderately strong (multiple R = .78).

Together, Calculative, Normative-Friends, Affective, Contract-Obligation, Desirability of Movement, Moral-Withdrawal, Supervisor-Normative, Behavioral, Psychological, and Networking accounted for 61% of the variance in intention to leave the job (adjusted $R^2$), confirming Hypothesis 4. The variables Normative-Friends, Desirability of Movement, Moral-Withdrawal, and Supervisor-Normative were positively related to turnover intention. The remaining variables showed a negative relationship with the dependent variable. Regression coefficients indicate the most contributing variables to the explanation of the variance in turnover intention were, respectively: Calculative, Normative-Friends, Affective, Contract-Obligation, Desirability of Movement, Moral-Withdrawal, Supervisor-Normative, Behavioral, Psychological, and Networking.

**Discussion**

The result of TAMS' scales and subscales factor analysis were mostly consistent with theory. However, some limitations became evident. The most relevant of them was the blending of two constituent scales factors (Affect + Continuance and

Table 3

*Predictive Model of Turnover Intention*

| | b | β | t | p |
|---|---|---|---|---|
| (Constant) | 3.74 | | 8.02 | .00 |
| Age | .00 | .01 | 0.36 | .72 |
| Salary/Hour | .00 | .04 | 1.42 | .16 |
| Calculative | -.31 | -.26 | -6.24 | .00 |
| Contract Obligation | -.18 | -.13 | -3.06 | .00 |
| Contract Violation | .04 | .04 | 1.20 | .23 |
| Affective | -.26 | -.18 | -3.93 | .00 |
| Psychological Costs | -.16 | -.09 | -2.45 | .01 |
| Ease of Movement | .03 | .02 | 0.58 | .56 |
| Networking | -.12 | -.08 | -2.18 | .03 |
| Mobility | .07 | .05 | 1.79 | .07 |
| Desirability of Movement | .19 | .13 | 3.51 | .00 |
| Crystallization of Alternatives | .03 | .03 | 0.77 | .44 |
| Inertia | -.06 | -.05 | -1.30 | .20 |
| Tangible Costs | -.04 | -.02 | -0.70 | .49 |
| Moral Attachment | .09 | .05 | 1.67 | .10 |
| Moral Withdrawal | .18 | .11 | 3.46 | .00 |
| Normative Family | .00 | .00 | 0.00 | 1.00 |
| Normative Friends | .28 | .21 | 5.54 | .00 |
| Coworker-Affect+Continuance | .08 | .04 | 1.23 | .22 |
| Coworker-Normative | -.09 | -.05 | -1.49 | .14 |
| Supervisor-Affective+Continuance | -.07 | -.05 | -1.61 | .11 |
| Supervisor-Normative | .16 | .10 | 2.69 | .01 |
| $R^2 = .61$ | | | | |
| $F = 35.4$ | | | | |

*Note.* $N = 523$ for all variables.

Normative) for both coworkers and supervisors. According to theory, Affective Commitment refers to identification with, involvement in, and emotional attachment to the organization (Maertz & Griffeth, 2004). Continuance Commitment, on the other hand, refers to commitment based on the employee's recognition of the costs associated with leaving the organization (Maertz & Griffeth, 2004). The TAMS' subscales of Constituent-Continuance refer specifically to potential losses that could arise from the breakup of relationships with colleagues or supervisors. Therefore, it is not surprising that the items belonging to the constituent-affective scale, which also relate to the relationships with colleagues and supervisors, have loaded on the same factor. In fact, Maertz and Boyar (2012) observed a similar pattern in the constituent supervisor-affective and continuance subscales in one of the samples originally used to develop TAMS.

After testing TAMS' structure, we analyzed its subscales reliability indices. Even though we obtained values of Cronbach's alpha between .60 and .70, an outcome that might be considered questionable (George & Mallery, 2003), we

argue that the results observed were acceptable. Although the model tested is supposedly universal, some variation in context or groups is understandable and to be expected, at least in some of the model's factors (Arnulf, Larsen, Martinsen, & Bong, 2014). Moreover, research strongly suggests that internal consistency of an adapted scale with subscales will be slightly lower than the original scale, among other reasons because while the same propositions may be stated in different languages, their expression as behavior dynamics may not be quite the same across different cultural contexts (Arnulf et al., 2014).

The correlation analysis among TAMS' subscales indicated that the items composing both the constituent-supervisor and the Constituent-Coworker Normative subscales, which refer to a sense of obligation to the organization (Maertz & Griffeth, 2004) – in another limitation shown by the Brazilian version of the instrument – failed to correlate to turnover intentions. The lack of correlation between these variables and turnover intention shows that the latter is independent of the sense of obligation to continue working with colleagues and supervisors. Although literature evidences a growing concern in understanding the dynamics between intentions to leave the job and work relationships with peers, and especially with superiors, the results are still often contradictory, showing the need to expand studies on this topic (Holtom et al., 2008).

Three subscales that compose the EOI also did not correlate to turnover intentions: Ease of Movement, Networking, and Mobility. This result suggests that having a large network, recognizing the availability of job opportunities, and being able to change jobs are not related to the intention of leaving a job. The same is not true when it comes to the quality of available opportunities (Desirability of Movement) and concreteness of job offers (Crystallization of Alternatives), variables that showed small correlations with turnover intention. Similar results were reported in previous research (Griffeth et al., 2005) which found higher correlations of Desirability of Movement ($r = .52$) and Crystallization of Alternatives ($r = .32$) with intention to quit, and lower correlations between the latter variable and Ease of Movement ($r = .13$), Networking ($r = .25$), and Mobility ($r = .19$). These unexpected findings of the EOI should not be interpreted as definitive. The EOI already had shown positive results in a Brazilian sample (Morse et al., 2014). This suggests that Brazilian researchers are able to score and interpret this version of the instrument.

In addition to performing bivariate correlation analyzes between each independent variable and turnover intention, we tested an explanatory model for the latter variable. The results of the regression analysis stand out for two main reasons. Firstly, at least one dimension of each of the eight motivational forces was included in the explanatory model of turnover intention, this evidences the importance of all eight forces in explaining intentions of leaving employment. More specifically, our results indicate that liking the organization and the feeling of being a part of it, realizing the psychological contract is being fulfilled, believing it is possible to achieve goals and values in the organization, and

knowing that voluntarily leaving will result in psychological costs, does not help to promote the intention to leave the organization. On the other hand, evaluating that changing jobs can contribute positively with career development, perceiving that there are good opportunities in the labor market, and that friends support the decision to leave, do contribute to intention to leave voluntarily employment (Maertz & Griffeth, 2004).

Two other variables also helped to explain the variance in intention to leave, but in opposition to the expected direction. The variable Networking, which according to its proponents should positively contribute with turnover intention, since it relates to the significant role contacts play in the job search process (Griffeth et al., 2005), negatively contributed towards that intention. Based on the items comprising this subscale it is possible to understand that job offers would mostly be outcomes of active job searches, which might not be desirable for an individual presently holding a job position.

The variable Supervisor-Normative refers to a sense of obligation towards the supervisor, and the perception that he or she recognizes the help provided as essential. According to Maertz and Boyar (2012), this sense of obligation is independent of variables such as an affectionate relationship between an employee and his or her supervisor. Our results showed a similar pattern of correlation between Supervisor-Normative and turnover intentions. It is possible that when employees perceive that their work is relevant to the performance of their supervisor, they realize that they have the potential to work in other and better positions, which could explain why Supervisor-Normative contributed positively to the explanation of turnover intentions.

The second aspect worth mentioning is the fact that some variables that significantly explained turnover intention did not show correlation with the Supervisor-Normative variable in previous analyzes. This was the case for the dimensions of Constituent Force and Networking on the EOI. The lack of correlation between turnover intention and these variables indicates that even though there is no direct relationship between them, in the presence of other variables, Networking and Supervisor-Normative are also explanations for intentions to leave the job.

Taken together, the results of our correlation and regression analyzes have important theoretical and practical implications. They provide empirical evidence for the theoretical assumption that motivational forces change simultaneously and cooperatively and that the intention to leave a job is a complex and dynamic phenomenon (Maertz & Griffeth, 2004), which often – but not always – leads to turnover behaviors (Maertz & Kmitta, 2012). Moreover, they indicate that even though some non-organizational variables, such as moral evaluation about leaving employment, may help explain the variance in turnover intentions, it is mostly adequately explained by high and lower affect-loaded organizational variables, such as management issues or seeking better opportunities for advancement (Maertz & Kmitta, 2012). This means organizations themselves are the main causes of employee's turnover intentions. Such result stresses the importance of a clear and ongoing dialogue with

professionals about their careers and opportunities in the organization. It also stresses how essential it is to comply with promises, both explicit and implicit, made to professionals. Therefore, incorporating these measures to organizational policies and practices can greatly contribute to a decrease in voluntary turnover intentions and behaviors.

In summary, in this study we sought evidence for the validity and reliability in the evaluation of motivational forces for turnover or attachment to organizations using a questionnaire comprised of eight scales and 20 subscales. Overall, our results provide support for the Eight Forces Model as a promising framework for understanding, in the Brazilian context too, why employees may intend to stay with, or leave, organizations. More importantly, these forces may be considered central mediators and also proximal causes of turnover intentions, and presumably, subsequent turnover behavior (Maertz, Boyar, & Pearson, 2012).

However, it is worth noting that participants of this study were mostly men, with high levels of education, mostly from a single state in the Brazilian Federation. These sample characteristics differ from the ones used in the study of development and validation of TAMS in the U.S., which despite being an advancement on the study of TAMS, may have influenced some of the peculiar results observed in the present study. Additionally, we chose to replace the scale of alternative forces for the EOI, instead of including the full measure in our survey, ir order to avoid extending data collection beyond necessary. Therefore, it is impossible to make direct and unrestricted comparisons between the results obtained in this study and results obtained in the original study, especially when we consider regression analysis.

Interestingly, despite these limitations, except in the case of the blending of the two factors (Affect + Continuance and Normative) on the Supervisor Scales, the authors of TAMS did not observe similar patterns of cross-loadings and of items loading in dimensions which were different from those theoretically hypothesized in the American sample – a weakness observed in the Brazilian version of the instrument. Even though some of these might have ensued due to issues of translation, such results suggest that there are cultural peculiarities that may have influenced the results observed. Thus, although our study shows evidence that the model of eight forces and the TAMS can be successfully applied in different contexts, the results point to specificities in the Brazilian context, such as the character of type relationships established with coworkers and with supervisors, emphasizing the need for a more systematic cross-cultural research, one in which relations among the constructs would be examined in the context of existing theories of cultural differences (Holtom et al., 2008). Such a research would surely make valuable contributions to the understanding of motivational forces of attachment and withdrawal from organizations in the global economy.

The use of several different variables to compose turnover models generates one important problem: the frequent conceptual overlap of constructs in the field (Maertz & Griffeth, 2004). Some authors have made efforts to systemize literature on turnover, trying to help both researchers and practitioners to better understand the meaning

and significance of different variables and models (Holtom et al., 2008). Among the proposed models, one of the most successful was the TAMS, from which comes the validation process we presented in this study. Our results provided evidence of internal consistency, convergent, divergent, and predictive validity, advocating on behalf of TAMS as a tool that allows more adequately understanding and management of turnover intention and its antecedents among employed professionals (Griffeth & Hom, 2001). However, despite being a promising measure, further studies are necessary to investigate and improve some of its scales and subscales, such as those related to normative and constituent forces. In doing this, future studies will generate as well as improve the scientific knowledge needed to design interventions capable of reducing voluntary turnover, and all its monetary and psychological costs for professionals and organizations.

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