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The role of transactional leadership in the social performance of the maquiladora industry

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Abstract

Purpose – This study examines the relationship between three dimensions of transactional leadership, contingent reward, active management by exception, and passive management by exception, and their impact on the company's social performance in the Mexican maquiladora industry.

Theoretical framework – A literature review of 120 articles on transactional leadership and organizational performance identifies 24 variables observed in the three dimensions of transactional leadership and 10 variables for social performance.

Design/methodology/approach – A questionnaire was applied to managers in the maquiladora industry and 156 responses were obtained. Structural equation modeling (SEM) based on partial least squares (PLS) was applied to test six hypotheses or relationships between the transactional dimensions and social performance.

Findings – There is a strong relationship between the dimensions of transactional leadership and social performance, except for the passive management by exception dimension, which shows no direct or positive effect on social performance.

Practical & social implications of research – In the Mexican maquiladora industry, passive management by exception is negatively impacted by contingent reward and hurts social performance, and managers must avoid this dimension. However, contingent reward strongly supports passive management by exception and social performance.

Originality/value – This research provides a framework for developing Mexico's maquiladora industry leaders, indicating the most important dimensions and activities required to guarantee social performance.

Keywords: Transactional leadership, organizational performance, social performance, structural equations.

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1 Introduction

Leadership has become vital in business management due to the increasingly complex and uncertain scenarios, competitive markets, and the difficulty of adapting quickly. In response, companies need to develop sustainable strategies in order to survive financially and socially (Van Vugt & Smith, 2019). In conclusion, the leadership style exercised by a company's management is crucial to maintain and improve the company's performance.

Specifically, the transactional leadership style has proven to have a positive influence on organizations because it focuses on meeting established goals and improving quantitative performance (Martin, 2017). This leadership prioritizes supervision and control over subordinates in their work assignments and provides rewards or punishments depending on the results obtained (Aga, 2016), it focuses on implementing strategies to improve the hierarchical structure (İşcan et al., 2014), and it inspires followers through their interests and needs (Arokiasamy et al., 2015).

According to Aga (2016), transactional leadership produces desirable results when the company is relatively stable. This type of leader has more conservative and reactive behaviors than proactive and innovative ones, so he works to maintain the existing system, composed of three dimensions: *contingent reward*, *passive management by exception*, and *active management by exception* (Martin, 2017).

Transactional leadership has been studied in different areas such as politics, administration, and education, where practical and experimental studies have been conducted; however, most articles study the influence of transactional leadership on production processes and organizational performance and focus on intermediate factors such as innovation, entrepreneurship, culture, flexibility, and project success. For example, İşcan et al. (2014) conducted a study in small and medium-sized Turkish companies that analyzed the effect of transactional and transformational leadership on organizational performance and innovation using the multifactor leadership questionnaire (MLQ) by Bass and Avolio (1997). Gemeda and Lee (2020) conducted a study in Ethiopia and South Korea involving 438 information and communication technology (ICT) professionals, assessing leadership styles, work engagement, task performance, and employee innovation behavior. They concluded that transactional leadership is positively related to work engagement, task performance, and innovation behavior in both countries, except for the relationship between transactional leadership and work engagement in Ethiopia.

To understand the importance and evolution of transactional leadership from an academic point of view, Figure 1 illustrates the number of articles found in the Scopus databases in recent years using the following search equation (solid line): TITLE-ABS-KEY("transactional leadership") OR TITLE-ABS-KEY("Transactional Leadership") OR TITLE-ABS-KEY("TRANSACTIONAL LEADERSHIP"), where an exponential regression curve has been fitted to represent the growth over time and evolution (dotted line), indicating the scientific and academic interest in this research area.

One of the most studied areas of transactional leadership is in industry, but few studies have been conducted in the Mexican manufacturing sector. For example, in Ciudad Juarez (Mexico), the maquiladora factory is the primary source of employment; there are currently 24 industrial parks with 329 maquiladoras and 83 warehouses (Manufacturing, Maquiladora and Service Export Industry, 2021). The maquiladora industry represents 65% of total employment in Ciudad Juarez, accounting for 298,950 out of the 459,631 jobs registered in the nine productive sectors. A maquiladora is defined as a foreign subsidiary located in Mexico that takes advantage of the region's strategic location and proximity to the United States of America as a major consumer, skilled human resources, and trade agreements to obtain preferential tariffs. Mexican maquiladoras are world-class, so management leadership in these organizations is essential to maintain and improve the impact of these companies in the marketplace.

According to Sargent and Matthews (1997), the maquiladora offers countries the opportunity to achieve

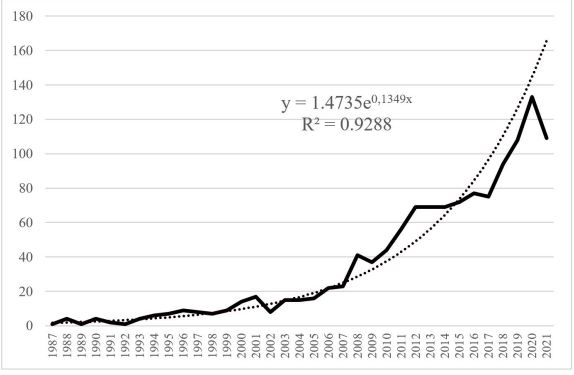

Figure 1. Articles analyzing transactional leadership

industrialization and economic growth by providing workers with specific skills and knowledge in innovative practices such as total quality management (TQM), just-in-time (JIT), integrated manufacturing, lean manufacturing, among others. However, the same operational performance has not been achieved among different maquiladoras in the same industrial sector. For example, Howell et al. (2003) report that regional differences and the organizational affiliation of Mexican leaders are significant moderators of performance, because they have the same level of influence on workers when compared to their U.S. counterparts, but obtain different benefits.

Jun et al. (2006) attribute these leadership differences to cultural aspects and human resource problems such as absenteeism, turnover, and lack of loyalty, suggesting that managers can improve performance through employee satisfaction, training systems, empowerment, and compensation.

Therefore, it is observed that leadership impacts the attitudes of subordinates. Suong (2020) researched companies from Vietnam and indicates that the social impact is very high, especially in the motivation to produce quality products and generate productivity indices, while a similar study is reported by Pula et al. (2020) in companies in Kosovo. However, in leadership characterized by abuse and authoritarianism, the associated effects on productivity are impaired due to a lack of employee organizational commitment and a poor sense of belonging (Ronen & Donia, 2020).

Also, Bastari et al. (2020) conducted a study in Indonesia and indicated that the leader can unite employees and change beliefs and attitudes towards the company's objectives, create trust, and demonstrate a capacity for democratic decision-making, which leads to high motivation and morale. This trust in the leader, defined by Ouakouak et al. (2020) as ethical leadership, is linked to the emotional leadership they exert on employees and their intention to resign from the company.

There are few studies on leadership applied to the maquiladora industry, and no evidence has been found of recent studies that report its effect on social performance (SP) obtained. This paper analyzes the effect of transactional leadership on SP within the Mexican maquiladora industry, understanding SP as the result (positive or negative) of employees' interactions in a company in achieving its objectives (Arfaoui et al., 2020). This research will allow leaders in the maquiladora industry to identify the best approaches to manage their subordinates to achieve their motivation, morale, training, commitment, and skills development.

The paper is divided into six sections. The first includes an introduction to the study; the second shows a literature review of transactional leadership; the third illustrates the methodology and includes the design, application, data collection, data validation, and the structural equation model to relate transactional leadership and social performance; the fourth shows the results; the fifth discusses the results; and, finally, the sixth provides the conclusions, with the limitations and suggestions for future research.

2 Literature review and hypotheses

2.1 Contingent reward (CR)

CR is the first dimension of transactional leadership and is based on transactions or exchange of resources with followers (Martin, 2017), which can be material or psychological (Aga, 2016). It comprises the description of the work to be performed, where incentives are used to influence the worker (Wahab et al., 2016). The leader clarifies the established objectives, indicates the expected levels of performance, gives recognition when goals are met, and sets the rewards to the subjects for their efforts (Ding et al., 2019). This dimension is composed of four factors: resource sharing (CR1), reward system (CR2), fulfillment of obligations (CR3), and personal recognition (CR4) (Liphadzi et al., 2015). For a definition of these items, see Supplementary Data (Appendix_E._DEFINITIONS_ITEMS_ALL).

2.2 Passive management by exception (PME)

PME is the second dimension of transactional leadership and is based on not intervening and letting problems arise and only attending to them when they are serious (Aga, 2016). Therefore, it is the most careless leadership style and can become liberal (Arokiasamy et al., 2015) because it avoids establishing agreements and specifying expectations or goals (Bass et al., 2003). Various studies have found that PME does not favor the achievement of objectives (Birasnav & Bienstock, 2019).

Usually, a leader who uses PME harms a group's safe work environment and does not show interest in employees (Flatau-Harrison, Griffin, & Gagné, 2020). The factors in this dimension are: passive corrections

(PME1), self-interest (PME2), keeping the system working/not taking risks (PME3), maintaining traditional ideas/not innovating (PME4), promoting established rules/not inspiring (PME5), commitment to realism/no vision (PME6), job instability (PME7), resistance to change (PME8), moldable ethics (PME9), and less concern for employees (PME10) (Flatau-Harrison et al., 2020). See Supplementary Data (Appendix_E._DEFINITIONS_ITEMS_ALL) for their definitions.

PME is positively related to CR because when workers have the established standards, they understand the responsibilities, obligations, and benefits (Mattson Molnar et al., 2019) that they may have in the company's performance (Çalış & Büyükakıncı, 2019), which are established in the employment contract, and therefore the leader will only have to act when it is essential (Aga, 2016). Therefore, the following hypothesis can be established.

H_1. *Contingent reward* has a direct and negative effect on *passive management by exception* in the leadership exercised in the maquiladora industry.

2.3 Active Management by Exception (AME)

AME is the third dimension of transactional leadership and involves constant monitoring to avoid irregularities in procedures, disregard of rules, or errors in the system, and to take corrective action quickly when they occur; compliance standards are specified and employees can be punished if they are not as successful as expected; and changes to minimize problems are promoted before they become more serious or complex (Arokiasamy et al., 2015; Birasnav & Bienstock, 2019).

AME contributes significantly to improving organizational performance (İşcan et al., 2014) and ensures that standards and contractual obligations are met (Aga, 2016). AME focuses on looking for deviations in the workplace in order to take action before a problem occurs (Birasnav & Bienstock, 2019) or, if it already exists, to intervene before it becomes more complex and to punish subordinates for their failures (Bass et al., 2003). Basically, AME maintains the company's current performance levels. It consists of 10 factors: setting standards (AME1), a focus on organizational goals (AME2), follower control (AME3), hierarchical decision making (AME4), improving development opportunities (AME5), supervision (AME6), auditing (AME7), short-term strategies (AME8), improving qualitative performance (AME9), and feedback (AME10). See Supplementary Data (Appendix_E._DEFINITIONS_ITEMS_ALL) for their definitions.

CR is related to AME because it aims to reward all workers for their work (Aga, 2016). It facilitates supervision and control (Fletcher et al., 2019), and therefore helps to keep the production system running (Fletcher et al., 2019). Therefore, the following hypothesis can be established.

H_2. *Contingent reward* has a direct and positive relationship with *active management by exception* in the leadership exercised in the maquiladora industry.

Given that in the literature review AME and PME are opposites, and given that researchers have reported that PME in transactional leadership does not support leaders to achieve organizational goals (Asrar-ul-Haq & Kuchinke, 2016; Birasnav & Bienstock, 2019; Flatau-Harrison et al., 2020), then it can be hypothesized that there is a significant relationship between AME and PME and so it is established that:

H_3. *Passive management by exception* has a direct and positive effect on *active management by exception* in the leadership exercised in the maquiladora industry.

2.4 Organizational performance in the social area (OP)

According to Muthuveloo et al. (2017), OP represents how the company uses its resources to achieve the established goals and at the same time remain relevant in the market. Choong (2014) reports a literature review of 32 years of publications on organizational performance, which can be divided into different dimensions and basic models: the rational model, focused on the market, profitability, and productivity; the human relations model, focused on improving the work environment through worker motivation and continuity; the internal model, focused on the efficiency and effectiveness of the company's operations; and the open system model, focused on growth and resource acquisition.

Social performance is one of the most frequently evaluated. Páez Gabriunas (2010) defines *social performance* as the level of commitment an organization has to its workers to provide them with job satisfaction that benefits the company. Our study took 10 items into account: implementation of staff motivation campaigns (OP1), staff training before performing a task (OP2), staff certification in different areas/tasks/customers (OP3), rewarding worker attitudes such as punctuality, attendance, and productivity

(OP4), internal staff development/internal promotion (OP5), scholarship schemes to increase staff education (OP6), promoting employee commitment and a sense of belonging (OP7), incentives for meeting organizational goals (OP8), talent attraction (OP9), and maintaining a low staff turnover (OP10). See Supplementary Data (Appendix_E._DEFINITIONS_ITEMS_ALL) for their definitions.

The CR dimension implies a certain level of attention to the well-being of employees because leaders must determine individual needs, expectations, and skills (Flatau-Harrison et al., 2020) and provide social resources such as recognition or tangible resources such as bonuses, incentives, and promotions to the workers to improve their motivation and commitment to the company (Fletcher et al., 2019). Therefore, the following hypothesis is proposed.

H_4. *Contingent reward* has a direct and positive effect on the *social performance* of the maquiladora industry.

Asrar-ul-Haq and Kuchinke (2016) report negative results in the correlation of the PME variable with the performance variable of employee effectiveness and satisfaction, while Martínez-Córcoles and Stephanou (2017) point out that PME may take corrective actions when expected employee performance is not achieved and may involve negative criticism, repercussions, and punishment; Flatau-Harrison et al. (2020) state that PME and laissez-faire leadership do not show concern for employees and contribute negatively to a safe workplace. Therefore, the following hypothesis is established:

H_5. *Passive management by exception* has a direct and negative effect on *social performance* in the maquiladora industry.

Zhang, Cao, and Wang (2018) state that AME motivates employees to exert effort at work by offering extrinsic rewards and promotes employee satisfaction, and Sandstrom and Reynolds (2020) believe that AME entails a focus on tasks and how they are performed, while Russell et al. (2018) indicate that constant monitoring of follower progress creates an environment of trust in the organizational structure. Therefore, the following hypothesis is defined:

H_6. *Active management by exception* has a direct and negative effect on *social performance* in the maquiladora industry.

Figure 2 illustrates the hypotheses put forward as relationships between the variables analyzed.

3 Methodology

To test the hypotheses in Figure 2, information was obtained from the manufacturing industry in Ciudad Juarez (Mexico), and the following activities were carried out in six phases. The first step was to consider the content validity through a literature review to identify the items, including more than 120 articles using keywords such as transactional leadership and social performance. A questionnaire (ee Appendix A) was developed consisting of three sections, and the first one consists of an introduction to obtain demographic information from the respondents and the company, such as job position, years in the position, gender, industrial sector, and number of employees in

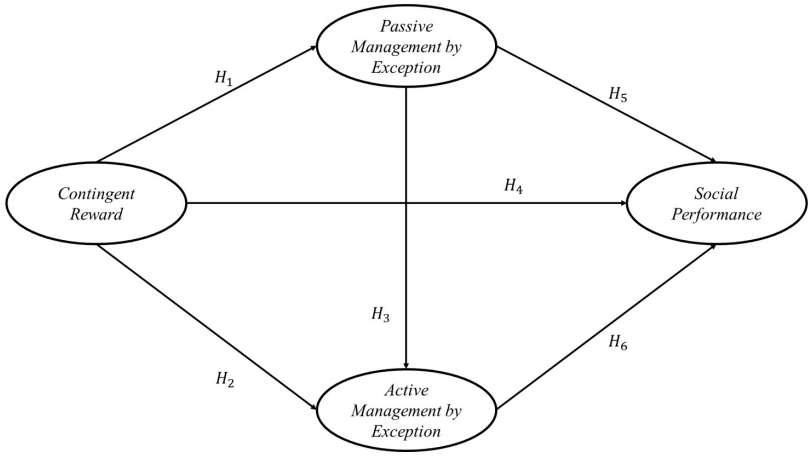

Figure 2. Initial model with hypotheses

the company. The second section investigates the three transactional leadership dimensions, with 24 items. The third section explores organizational performance in the social context with 10 items.

In order to better adapt to the regional context and culture, validation was carried out by judges. Sixteen judges were selected (nine managers from the maquiladora industry and seven academics) and the questionnaire was presented to them to review each item and its construct. See Supplementary Data (Appendix_B._JUDGE_VALIDATION) for an example of judge validation. After two rounds with the judges, a final questionnaire was produced, which is shown in Appendix A.

The questionnaire had to be answered on a five-point Likert-type scale to indicate the use of each item by those involved in the company. One is never, two is rarely, three is frequently, four is almost always, and five is always.

The second stage was the data collection, and due to the pandemic restrictions because of COVID-19 in Ciudad Juarez (Mexico), for the application of the questionnaire, the Google Forms platform was used with a stratified sampling method, focused on managers and engineers from the manufacturing industry, to whom the link to the questionnaire was sent by email, inviting them to participate in the research. The data collection period was from October 20, 2020 to January 20, 2021. As an inclusion criterion, the respondent had to be the leader of at least one team to guarantee that they had carried out a team project and that it had been completed.

The third phase aimed to debug the information obtained from the Google Forms platform. A database was downloaded in the XLS extension, read, and analyzed in SPSS v.25® software. The database was debugged before being analyzed according to the following tasks: missing value identification and, as suggested by Hair Jr. et al. (2010), removal from the analysis cases where the percentage is greater than 10%, and where the percentage is less than 10%, the missing value was replaced by the median in that item. Also, to avoid bias in the analysis, extreme values were identified and replaced by the median. In this case, the values of each item were standardized, where values greater than 4 in absolute value are considered extreme values.

Finally, the standard deviation of each of the cases analyzed was obtained. Those standardized values lower than 0.5 were eliminated from the analysis (Hair Jr. et al., 2010), since it is assumed that the respondent answers the questions with the same or very similar values. The final database analyzed can be found in the work of Mendoza Solis and García Alcaraz (2021).

The fourth phase reports a descriptive analysis of the sample, with the median reported as a measure of central tendency and the interquartile range (IQR) as a measure of dispersion, representing the arithmetic difference between the third (Q_3) and first (Q_1) quartile for each item (Q_3-Q_1) (García-Alcaraz et al., 2017; Tastle & Wierman, 2007).

The fifth phase reports the validation process for the information obtained, and several procedures were used, specifically, for internal validation, the Cronbach's alpha index (CAI) was calculated, and values greater than 0.70 were accepted (Tuesca-Molina et al., 2021). However, the CAI for latent variables was obtained iteratively because it often improves when an item is eliminated.

The average variance extracted (AVE) was reported for convergent validity and values greater than 0.5 were desired. The R-squared and adjusted R-squared were calculated for parametric predictive validity and values greater than 0.02 were expected. The Q-squared was calculated for non-parametric predictive validity and values similar to the R-squared were expected. The variance inflation factor (VIF) was calculated to measure collinearity within latent variables and values less than 3.3 were expected (Kock, 2015); however, Hair et al. (2016) states that values lower that 0.05 for the ARS must be analyzed in depth.

In the sixth phase, the structural equation modeling (SEM) technique was chosen to validate the relationships between variables established as hypotheses, as it helps to understand complex problems (Nitzl, 2016) and has been used in similar research by García-Alcaraz et al. (2017) to relate the agility and flexibility of wine supply chains, and is used in social science reports because it allows for contrasting hypotheses of latent variables integrated by different observed variables (Doral Fábregas et al., 2018).

If the latent variables obtained the above validation indices, the WarpPLS v.7® software, based on partial least squares (PLS), was used to evaluate the SEM, as recommended when there are small samples, with a non-normal data distribution, or in a Likert scale (Kock, 2019b). Ned Kock (2013) suggests calculating six model fit indices before interpreting the results: average path coefficient (APC), average R-squared (ARS), and average adjusted R-squared (AARS) for predictive validity, and p-values lower than 0.05 are accepted; average block VIF (AVIF) and average full collinearity VIF (AFVIF) to measure collinearity, and values lower than 5 are

accepted; and finally, Tenenhaus goodness of fit (GoF) to measure the data fit to the model, and values greater than 0.36 are accepted.

After estimating the model fit, the direct, indirect, and total effects were estimated. The direct effects are visualized as arrows that connect the latent variables in Figure 1. In contrast, the indirect effects are represented by two or more latent variables connected by the arrows, and the total effects are the sum of the indirect and direct effects. The effects are represented by a standardized β, indicating the variation in standard deviations that the independent latent variable has in a dependent variable. The relationships between variables were tested using the null hypothesis $\beta=0$ versus the alternative hypothesis $\beta\neq0$ and using a 95% confidence level. Also, an R-squared value was estimated for all the effects caused by the independent on the dependent latent variables, and finally, the effect size (ES) is reported for every effect (direct, indirect, and total) as a measure of the variance explained by a relationship in a dependent variable.

However, the relationship between the latent variables cannot be fully explained by the β value, so it is necessary to understand different scenarios for them. In this study, for all hypotheses in Figure 2, the probability of occurrence for low and high scenarios is reported. A low scenario occurs when there is a standardized Z<-1 (represented by "-") and a high scenario occurs when Z>1 (represented by "+"). The reported probabilities are: 1. The probability of occurrence of a variable at its low and high levels; 2. The probability of joint occurrence of two variables in low and high scenarios, represented by "&"; 3. The conditional probability of occurrence of the dependent variable given that the independent variable has occurred in its high and low scenarios, represented by "If."

4. Results

4.1 Descriptive analysis of the sample

One hundred and sixty-four questionnaires were received before January 20 (2021), the cut-off date; however, eight were eliminated in the debugging process because they did not meet the inclusion criteria, leaving 156 for analysis. This sample size is sufficient according to the statistical power and minimum requirements based on the β obtained. The sample is composed of 91 men and 65 women. Table 1 shows the position of the respondents and the number of years in it. Note that 76 engineers and 56 managers answered the questionnaire, representing 84.61% of the sample. Also, most of the respondents have 2 to 5 years of experience in their position (70.51%).

Table 2 illustrates the number of employees in the company and the industrial sector to which they belong, and shows that most of the companies are large, since 101 of them have more than 500 employees (64.74%), and that the representative industrial sectors are automotive and services, with 47 and 46, respectively, representing 59.61%.

4.2 Descriptive analysis of the items

Table 3 shows the descriptive analysis for the latent variable items that were validated and included in the model. Note that the highest medians are associated with fulfillment of obligations (CR3) and a focus on organizational goals (AME2). Regarding the IQR, low values indicate an adequate consensus among respondents.

4.3 Validation of latent variables

Table 4 shows the validation indices of the latent variables, where the first row contains the number of items before and after the validation of each variable. It can

Table 1.
Position and years in the same position

Position	Years in position			Total
	2 to 5	5 to 10	>10	
Manager	41	9	6	56
Engineer	52	14	10	76
Supervisor	17	4	3	24
Total	110	27	19	156

Table 2.
Number of employees and industry sector

Number of employees	Industrial Sector								Total
	A	L	P	M	E	M	C	S	
0-50	5	3	0	0	0	2	0	12	22
51-100	2	0	0	0	1	0	0	4	7
101-200	3	4	0	1	0	1	0	3	12
201-500	1	3	2	3	0	0	0	5	14
> 501	36	16	4	2	1	15	5	22	101
Total	47	26	6	6	2	18	5	46	156

A- Automotive, L- Electrical/electronics, P- Plastics, M- Metals, E- Packaging, D- Medical, C- Communications, S- Services

Table 3.
Median of model items and interquartile range.

ítem	Median	IQR
CR2. Reward system	2.92	1.79
CR3. Fulfillment of obligations	4.08	1.68
CR4. Personal recognition	3.23	1.61
PME8. Resistance to change	2.71	2.00
PME9. Moldable ethics	2.86	1.84
PME10. Less concern for employees	2.52	1.92
AME2. A focus on organizational goals	4.34	1.42
AME3. Follower control	3.96	1.60
AME5. Improving development opportunities	3.68	1.67
AME8. Short-term strategies	3.76	1.65
OP1. Staff motivation campaigns are in place	3.04	1.79
OP5. Internal staff development/internal promotion	3.55	1.80
OP7. Promoting employee commitment and a sense of belonging	3.44	2.00

Table 4.
Validation of latent variables

Indices	*Proposed model*								*Modified model*					
	CR		*AME*		*PME*		*OP*		*CR*		*AME*		*OP*	
Items	**4**	**3**	**10**	**4**	**10**	**3**	**10**	**3**	**4**	**3**	**10**	**4**	**10**	**3**
R-squared			0.396		0.051		0.474				0.422		0.443	
Adj. R-squared			0.388		0.045		0.464				0.419		0.436	
Composite reliability	0.87		0.914		0.878		0.931		0.870		0.914		0.931	
Cronbach's alpha	0.776		0.873		0.791		0.889		0.776		0.873		0.889	
Avg. var. extract.	0.69		0.726		0.705		0.818		0.690		0.726		0.818	
Full collin. VIF	1.898		1.964		1.066		1.809		1.887		1.938		1.740	
Q-squared			0.438		0.051		0.477				0.428		0.447	

be observed that AME, PME, and OP have R-squared and adjusted R-squared values higher than 0.02, so it is concluded that they have sufficient parametric predictive validity; however, the R-squared for PME is 0.051 and another modified model is reported, eliminating this variable. Regarding the Cronbach's alpha index, all latent variables have scores above 0.7, demonstrating internal validity. Also, the AVE values for measuring convergent validity are greater than 0.5. The VIF is less than 3.3 for all latent variables, so it is assumed that there are no collinearity problems. The proposed model and the modified model evaluated are shown in Figure 3 and Figure 4.

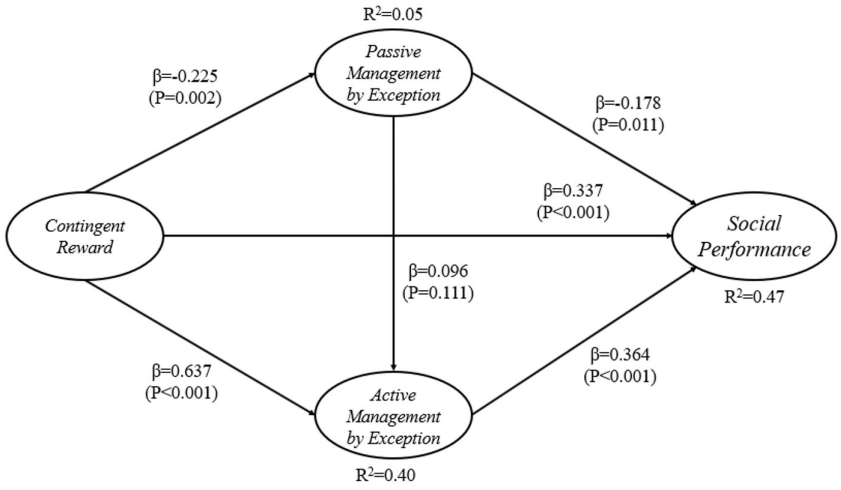

Figure 3. Evaluation of the initial model

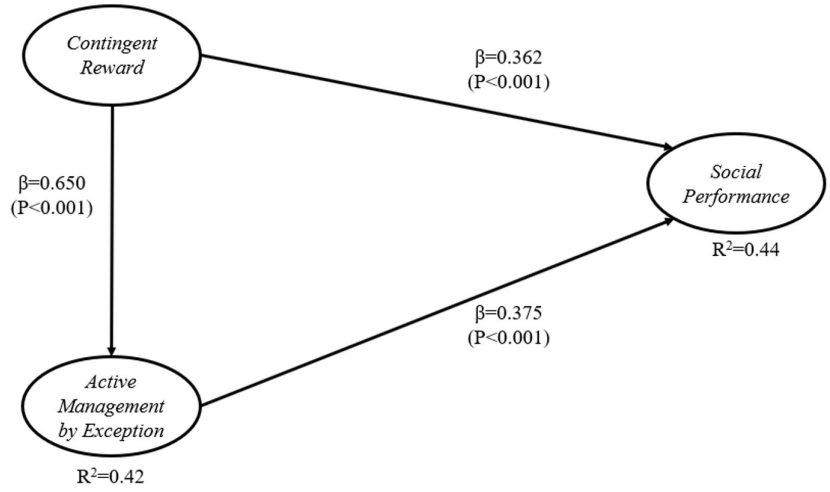

Figure 4. Modified model

Finally, it is observed that AME, PME, and OP have non-parametric predictive validity, given that the Q-squared values are greater than 0.02, indicating that the latent variables can be integrated into the structural equation model, as according to N. Kock (2019a).

4.4 Structural equation model

Figure 3 shows the proposed model, and Figure 4 shows the modified model analyzed, with the standardized values of β and the corresponding P-value for the hypothesis test. For each latent dependent variable, the R-squared value is given, indicating the variance explained by the independent variables. Table 5 shows the efficiency indices for the models, with the APC, ARS, and AARS indicating acceptable predictive validity. All these values have an associated P-value of less than 0.05, and the VIF and AFVIF values are less than 3.3, indicating that the model does not have collinearity problems. Finally, it is observed that the Tenenhaus GoF is greater than 0.36, and for all of the above, it is concluded that the model is valid and interpretable.

The full results for the proposed model appear in Supplementary Data (Appendix_C._Outputs_for_proposed_model) and full results for the modified model appear in Supplementary Data (Appendix_D._Outputs_for_modified_model).

4.4.1 *Direct effects and hypothesis validation*

Table 6 presents the conclusions regarding the proposed hypotheses according to the direct effects between the variables in the proposed and modified models. The dependence value between the latent

variables is represented by β, and the P-value is associated with its statistical significance. The last column shows the percentage increase for the β value. For example, the relationship between CR and AME shows values of β=0.637 and β=0.650 with P<0.01 for the proposed and modified models, indicating that when the standard deviation of CR increases by one unit, AME increases by 0.637 and 0.650 units and these effects are statistically significant.

Table 5.
Validation of latent variables

Index	*Proposed model*	*Modified model*	*% Difference*
APC, acceptable if P<0.001	0.306, P<0.001	0.462, P<0.001	+50.91
ARS, acceptable if P<0.001	0.307, P<0.001	0.433, P<0.001	+41.04
AARS, acceptable if P<0.001	0.299, P<0.001	0.427, P<0.001	+42.81
AVIF, acceptable if ≤ 5, ideally ≤3.3	1.285	1.664	+29.49
AFVIF, acceptable if ≤ 5, ideally ≤ 3.3	1.684	1.855	+10.15
GoF, medium ≥ 0.25, large ≥ 0.36	0.475	0.568	+19.58

Table 6.
Summary of assumptions

Hypothesis	Latent variables	Proposed model		Modified model		Decision	% difference
		β	P-value	β	P-value		
H_1	*CR→PME*	-0.225	=0.002	-	-	Accepted	
H_2	*CR→AME*	0.637	<0.001	0.650	<0.001	Accepted	+2.04
H_3	*PME→AME*	0.096	=0.111	-	-	Rejected	
H_4	*CR→OP*	0.337	<0.001	0.362	<0.001	Accepted	+7.41
H_5	*PME→OP*	-0.178	=0.011	-	-	Accepted	
H_6	*AME→OP*	0.364	<0.001	0.375	<0.001	Accepted	+3.02

Table 7.
Indirect effects

	Proposed model		*Modified model*
	CR	*PME*	*CR*
AME	-0.022, P=0.351 ES=0.014		
OP	0.264 P<0.001 ES=0.158	0.035, P=0.267 ES=0.010	0.244, P<0.001 ES=0.146

Table 8.
Total effects

	Proposed model			*Modified model*	
	CR	**AME**	**PME**	**CR**	**AME**
AME	0.615, P <0.001 ES=0.400		0.096, P =0.111 ES=0.018	0.650, P<0.001 ES=0.422	
PME	-0.225, P=0.002 ES=0.051				
OP	0.601, P <0.001 ES=0.360	0.364, P <0.001 ES=0.220	-0.143, P =0.033 ES=0.042	0.606, P<0.001 ES=0.363	0.365, P<0.001 ES=0.226

4.4.2 *Indirect effects*

Table 7 shows the sum of the indirect effects obtained between the variables in the proposed and modified models; for example, OP shows an indirect effect of 0.035 on PME, obtained by multiplying the direct effect of 0.096*0.364 of the relationship between PME to AME and AME to OP.

4.4.3 *Total effects*

The total effects are the sum of the direct and indirect effects and appear in Table 8 for the proposed and modified models. For the proposed model, its total effect of AME is the same as its direct effect, since it has no indirect effects. On the other hand, OP has a total effect of 0.143 on PME. For the modified model, there is only one indirect effect between CR and OP, and all the total effects are statistically significant.

4.4.4 *Sensitivity analysis*

Table 9 shows the probabilities for variables in four possible scenarios when presented alone in their high (+) and low (-) scenarios, together (&), or as conditional probabilities (if). For example, the probability of having OP+ if CR+ had occurred is 0.394, but the probability of finding CR+ in isolation is 0.212, and for CR- in an isolated scenario it is 0.199. However, it is observed that CR- can generate some risk because it is associated with AME- with a probability of 0.677 and OP- with a probability of 0.581. The interpretation for the other probabilities is similar.

5 Discussion of results

Six hypotheses were presented in a proposed model in Figure 2, five were accepted, and one was statistically rejected. However, PME has a value of R^2=0.05, which is low, and a modified model was constructed by eliminating that variable, which is consistent with the findings reported by Flatau-Harrison et al. (2020), who found that PME contributes negatively to the creation of a safe workplace. Also, Asrar-ul-Haq and Kuchinke (2016) showed negative results on employee satisfaction, indicating that the PME variable does not contribute to gains in OP. Regarding the hypotheses, there is sufficient statistical evidence to state the following in the maquiladora industry:

1. CR has a direct and negative effect on PME, because when the standard deviation of the first variable increases by one unit, the second variable decreases by 0.225.

2. CR has a direct and positive effect on AME, because when the standard deviation of the first variable increases by one unit, the second variable increases by 0.637 units.

3. PME does not have a direct and positive effect on AME, since the P-value associated with β=0.096 is greater than 0.05.

4. CR has a direct and positive effect on OP, because when the standard deviation of the first variable increases by one unit, the second variable increases by 0.337 units.

5. PME has a direct and negative effect on the OP, because when the standard deviation of the first variable increases by one unit, the second variable decreases by -0.178 units.

Table 9.
Sensitivity analysis

	Level	Probability	CR		PME		AME	
			+	-	+	-	+	-
			0.212	**0.199**	**0.141**	**0.173**	**0.237**	**0.205**
PME	+	0.141	&=0.038	&=0.032				
			if=0.182	if=0.161				
	-	0.173	&=0.051	&=0.019				
			if=0.242	if=0.097				
AME	+	0.237	&=0.115	&=0.019	&=0.051	&=0.077		
			if=0.545	if=0.097	if=0.364	if=0.444		
	-	0.205	&=0.000	&=0.135	&=0.045	&=0.032		
			if=0.000	if=0.677	if=0.318	if=0.185		
OP	+	0.141	&=0.083	&=0.019	&=0.019	&=0.064	&=0.096	&=0.006
			if=0.394	if=0.097	if=0.136	if=0.370	if=0.405	if=0.031
	-	0.173	&=0.000	&=0.115	&=0.038	&=0.019	&=0.006	&=0.115
			if=0.000	if=0.581	if=0.273	if=0.111	if=0.027	if=0.563

6. AME has a direct and positive effect on OP, because when the standard deviation of the first variable increases by one unit, the second variable increases by 0.364 units.

Regarding the sensitivity analysis, according to Table 8, managers in maquiladora companies should seek to obtain CR+ since this guarantees AME+ and OP+ with a probability of 0.545 and 0.394, respectively. Moreover, there is a guarantee that investing in CR+ will always be profitable for firms since it is not associated with AME- and OP-, as the probabilities are zero. However, if firms have CR-, then there is a risk of having AME- and OP- with probabilities of 0.677 and 0.581, respectively. Similarly, CR- is not associated with AME+ or OP+, as the conditional probabilities are low or zero.

The literature indicates that managers and leaders should avoid having PME+ since it can generate undesirable scenarios in AME- and OP- with conditional probabilities of 0.318 and 0.273, respectively. This is proven by observing that PME- can be associated with AME+ or OP+ with probabilities of 0.444 and 0.370, respectively, indicating that PME- can generate favorable conditions. In other words, not strengthening PMA+ is favorable for firms.

Finally, it is observed that AME+ favors OP+ since the conditional probability is 0.405, and likewise it is not associated with OP-, since the probability is very low. That is, AME always promotes social performance. However, AME- creates a risk of having OP-, with a probability of 0.563, and it is not associated with OP+ since the probability is low.

The last findings have managerial implications. For example, company managers in the maquiladora industry should improve social performance (SP) because it impacts organizational benefits and goals. That is, employees' job satisfaction contributes to the efficient performance of their activities, leads to them fulfilling their obligations, and generates commitment and loyalty to the company, which is reflected as economic income. Páez Gabriunas (2010) defines SP as the level of commitment an organization has to its workers to provide them with job satisfaction that benefits the company.

Also, the findings showed that the most critical dimension within the transactional leadership style is CR due to its direct and indirect impact on SP. The dominant observed variables are the reward system and personal recognition, establishing that the worker requires material and psychological reward. Thus, companies that focus on these two variables can have a significant impact on increasing SP.

Additionally, managers should always strive for high levels of CR and AME. Otherwise, there is an increased risk of also having low levels of social performance, which translates into a lack of employee morale and motivation.

6 Conclusion and limitations

According to the findings, it is concluded that in the maquiladora industry in Ciudad Juarez (Mexico), the most critical dimensions for transactional leadership are CR and AME, which show a positive effect on OP because they are associated with the integration of the human factor in all tasks. In contrast, PME showed a negative effect, proving that it does not contribute to SP because it does not motivate employees, nor does it create a safe environment and job satisfaction. The development of transactional leadership is recommended at medium levels, where it is required to accomplish specific tasks, carry out short or medium-term projects, and make implementations in the company. This leadership style is suitable for management tasks, provides a pleasant environment, is useful when the company is in a stable position, and can offer substantial benefits to the employee.

However, the use of a transactional leadership style is not recommended when the company is undergoing a transformation or when there is no possibility of tangible exchanges, because the most robust dimension of this style is the contingent reward, which would take away the main strength of the leadership. This transactional leadership would reduce the ability to effectively influence the worker, which would harm the company's social performance.

The hypotheses tested using the structural equation models use data obtained from the manufacturing industry in Ciudad Juarez. Results in other industrial sectors and countries may differ due to culture and government rules. Also, the independent variables do not explain 100% of the dependent variables, and other variables not analyzed in this research may influence them. As a recommendation for the future, we suggest analyzing the impact of the transactional leadership style on organizational performance in the operational and environmental areas.

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APPENDIX A

Questionnaire to measure the relationship between leadership and organizational performance.

The purpose of this questionnaire is to obtain information about perceptions of a leader's leadership style in the workplace and its influence on the company's organizational performance. It should be noted that there are no right or wrong answers because these are perceptions; therefore, we ask you to be completely honest and truthful when answering each question.

a) The questionnaire is divided into two sections and will take you 10 minutes to answer.

b) Please rate the terms accordingly by indicating your choice in the box.

All answers are confidential.

Only summaries will be reported.

Please enter the following information about your organization, which will be used for the distribution of the report.

Job position: _____ Years in position: _____ Gender:

Industrial Sector:

Automotive Electrical/Electronic Plastics Metals

Packaging Medical Communications Services

Number of employees of the company where you work:

0-50 51-100 101-200 201-500 501 or more

If you would like to receive an electronic copy of the final report of this research, please indicate an email address:

_____

Section I. This section seeks to obtain data on the type of leadership you exercise in your work.

Instructions: Please indicate with an "X" how often you use each factor according to the rating scale below.

1 = Never	2 = Rarely	3 = Frequently	4 = Almost always	5 = Always

1. Transactional Leadership	**- Scale +**				
Contingent reward	**1**	**2**	**3**	**4**	**5**
Resource sharing					
Reward system					
Fulfillment of obligations					
Personal recognition					
Passive management by exception					
Passive corrections					
Self-interest					
Keeping the system working/not taking risks					
Retaining traditional ideas/not innovating					
Promoting established rules/not inspiring					
Commitment to realism/no vision					
Job instability					
Resistance to change					
Moldable ethics					
Less concern for employees					
Active management by exception					
Setting standards					
Focusing on organizational goals					
Follower control					
Hierarchical decision making					
Improving opportunities for development					
Supervision					
Auditing					
Short-term strategies					
Improving qualitative performance					
Feedback					

Section II. This section seeks to obtain data on organizational performance in the social area of the company where you work.

Instructions: Please indicate with an "X" the frequency according to the following rating scale.

1 = Never	2 = Rarely	3 = Frequently	4 = Almost always	5 = Always

	- Scale +				
2. Organizational Performance	**11**	**22**	**33**	**44**	**55**
Social Performance					
Staff motivation campaigns are in place.					
Training is given to staff prior to performing a task.					
There is certification of staff in different areas/tasks/clients.					
Rewards are given for workers' attitudes, such as punctuality, attendance, and productivity.					
There is internal staff development/internal promotion.					
Scholarships are available to increase staff training.					
Employee commitment to membership is encouraged.					
Incentives are given to meet the organization's objectives.					
Talent attraction programs are in place.					
There is low staff turnover.					

SUPPLEMENTARY MATERIAL

Supplementary material accompanies this paper:

Supplementary Data: Appendix B JUDGE_VALIDATION.

Supplementary Data: Appendix_C_Outputs_for_proposed_model.

Supplementary Data: Appendix_D._Outputs_for_modified_model.

Supplementary Data: Appendix_E._DEFINITIONS_ITEMS_ALL.

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